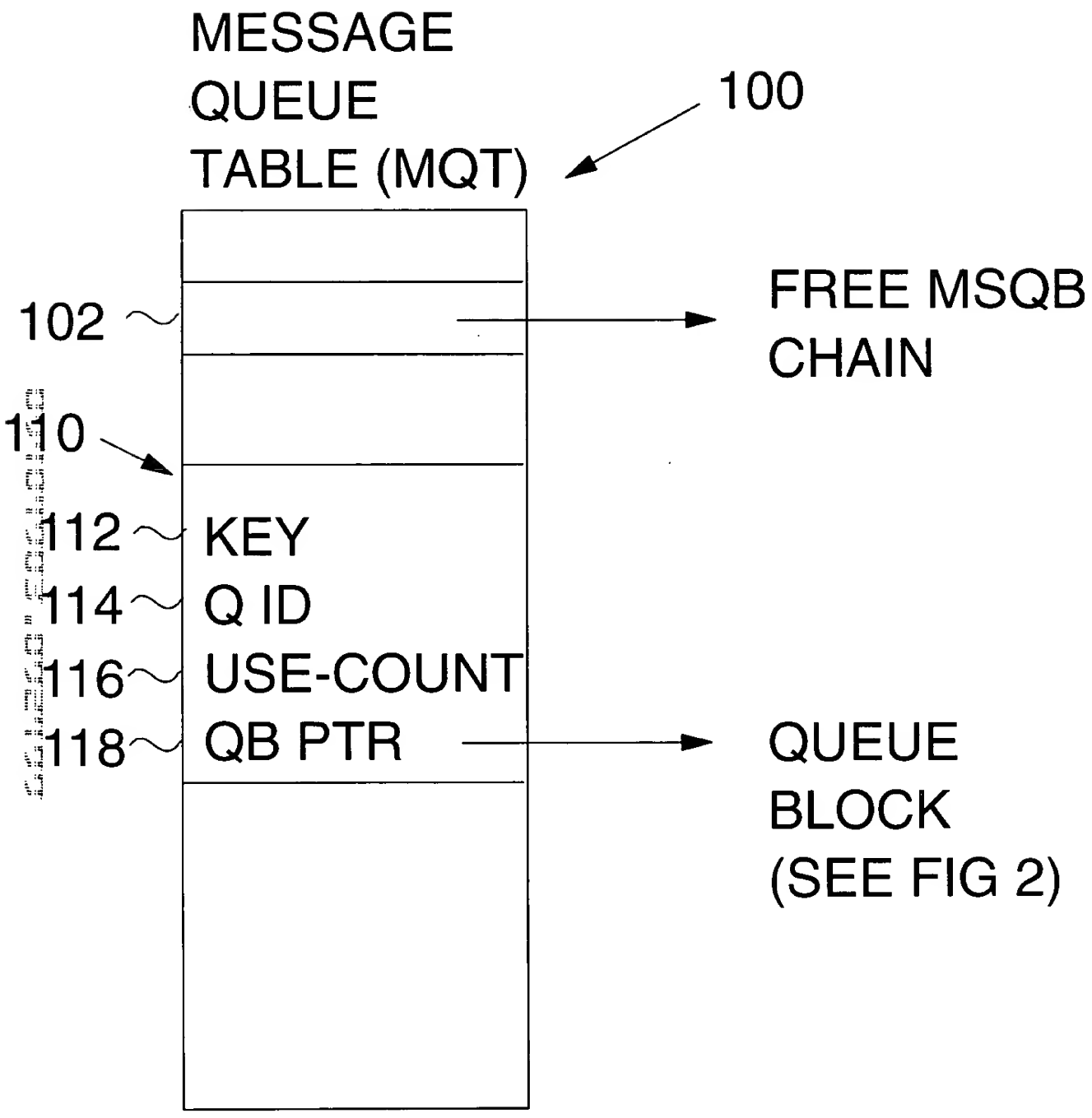
MESSAGE
QUEUE
TABLE (MQT)
100
102
FREE MSQB
CHAIN
110
112
KEY
114
Q ID
116
USE-COUNT
118
QB PTR
QUEUE
BLOCK
(SEE FIG 2)

Fig 1

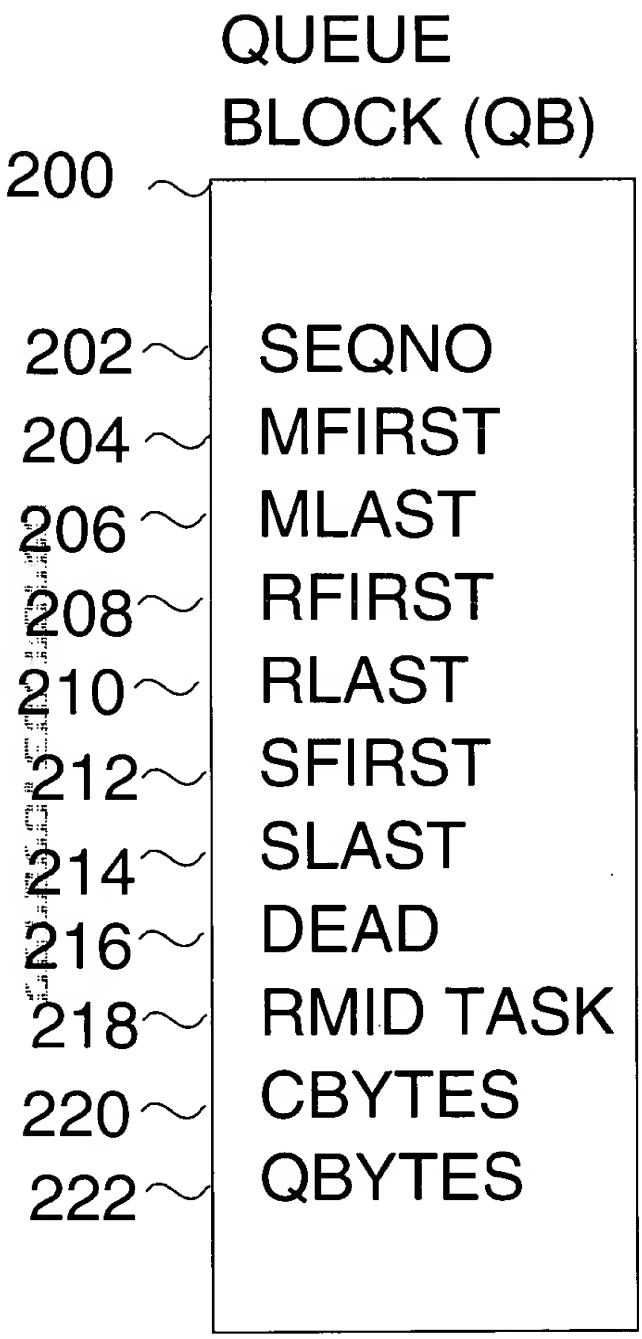
QUEUE
BLOCK (QB)
200
202
SEQNO
204
MFIRST
206
MLAST
208
RFIRST
210
RLAST
212
SFIRST
214
SLAST
216
DEAD
218
RMID TASK
220
CBYTES
222
QBYTES

Fig 2

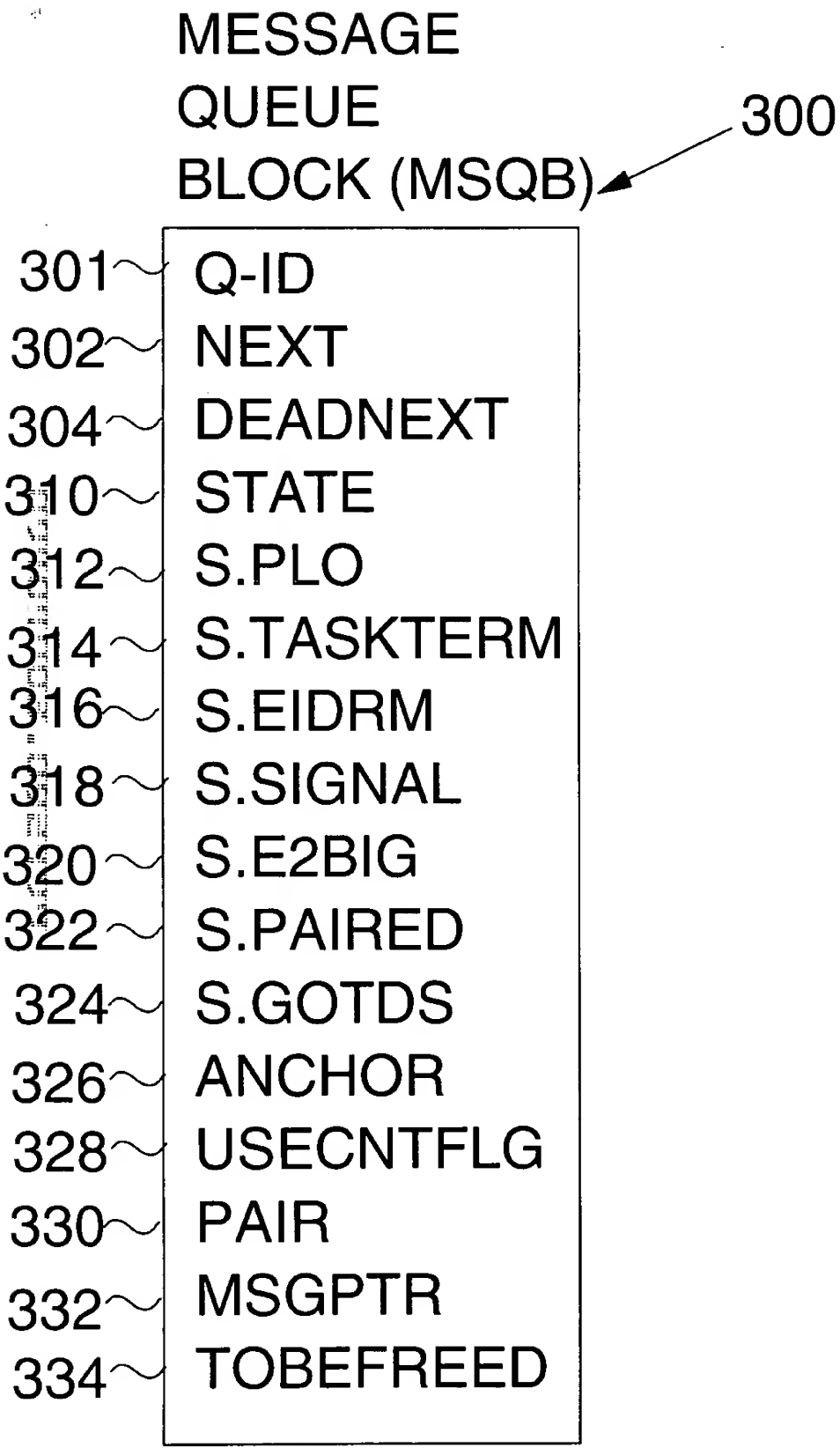
MESSAGE
QUEUE
BLOCK (MSQB)
300
301
Q-ID
302
NEXT
304
DEADNEXT
310
STATE
312
S.PLO
314
S.TASKTERM
316
S.EIDRM
318
S.SIGNAL
320
S.E2BIG
322
S.PAIRED
324
S.GOTDS
326
ANCHOR
328
USECNTFLG
330
PAIR
332
MSGPTR
334
TOBEFREED

Fig 3

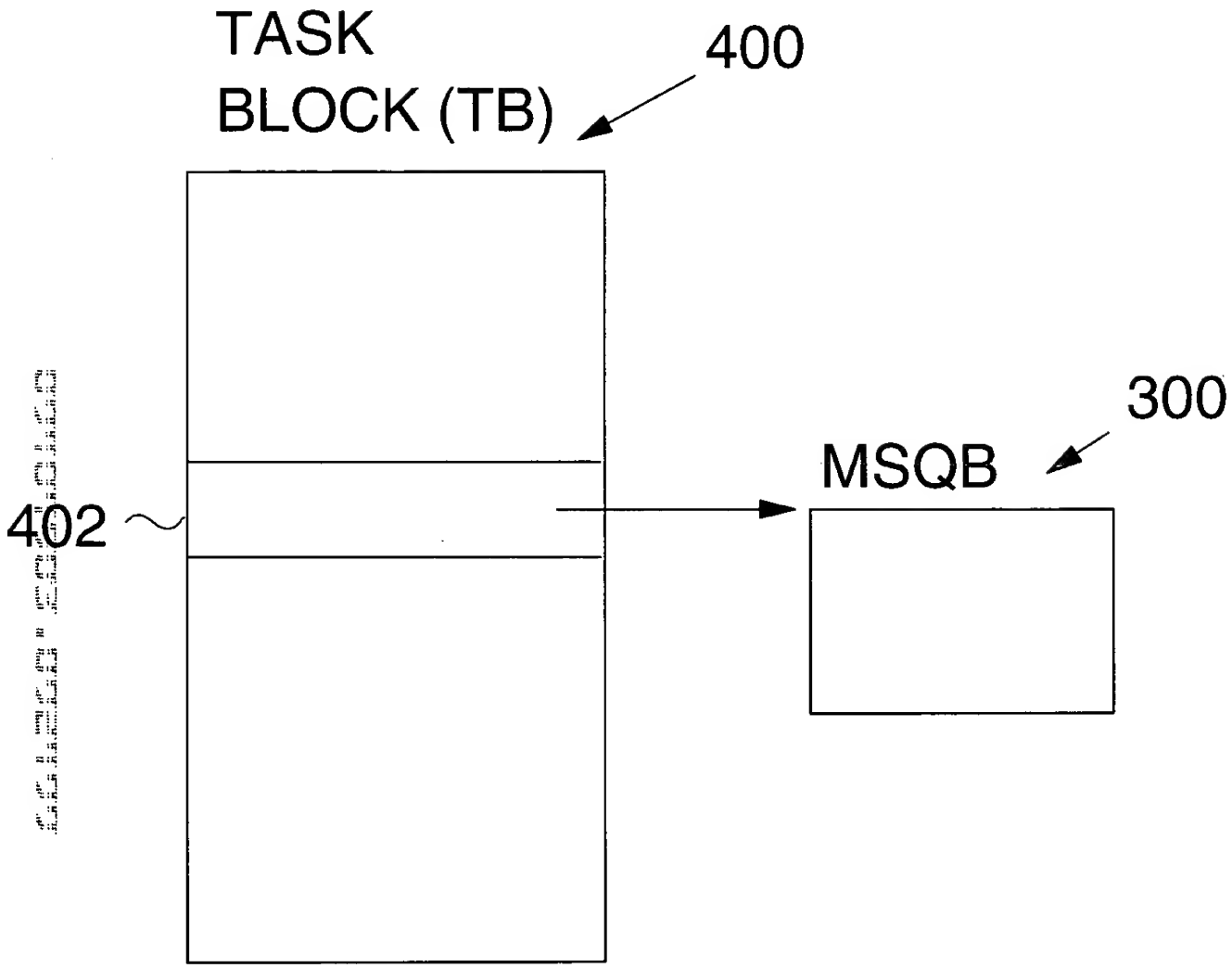

Fig 4

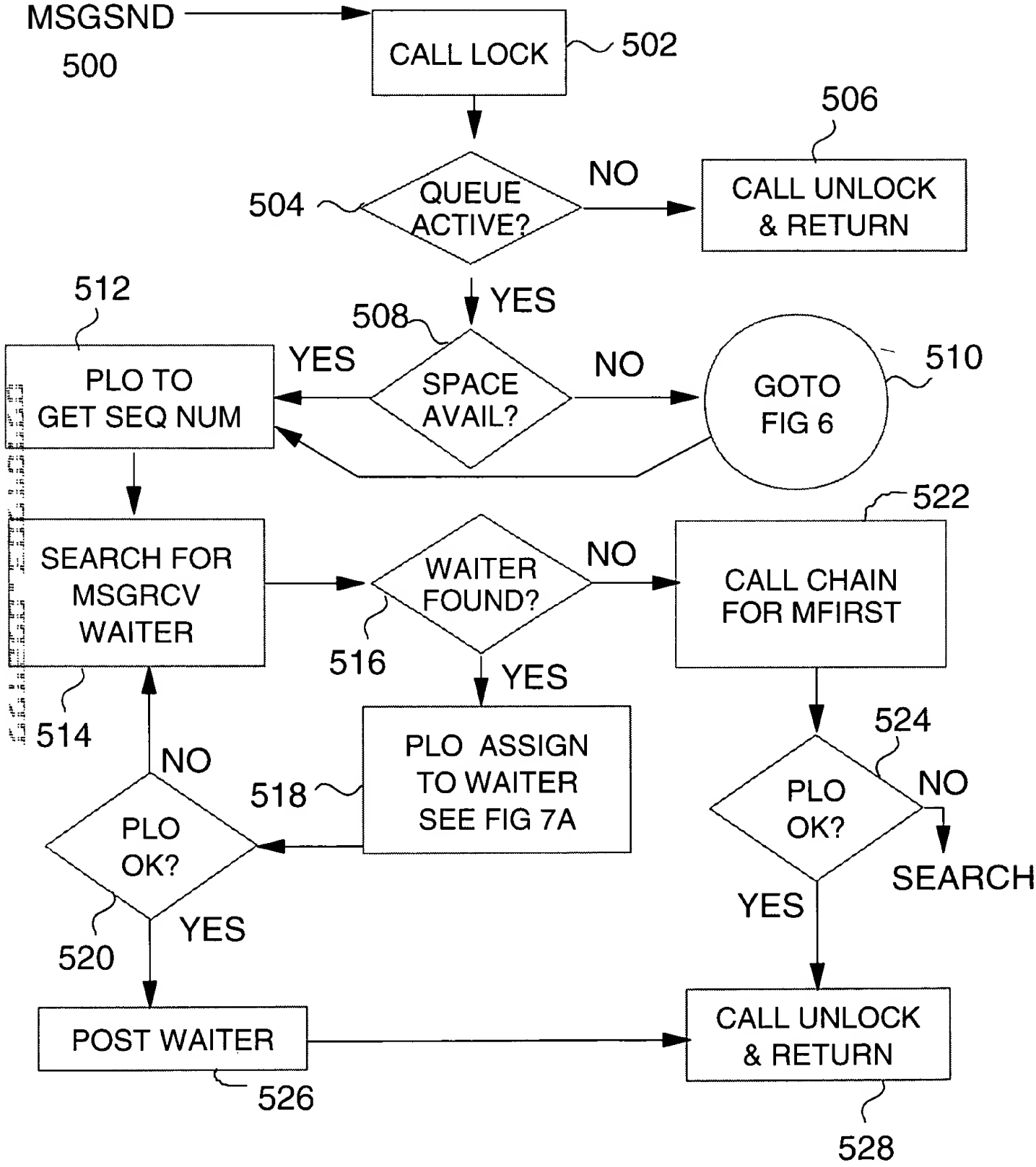
MSGSND
500
CALL LOCK
502
506
504
QUEUE ACTIVE?
NO
CALL UNLOCK & RETURN
YES
512
508
YES
PLO TO GET SEQ NUM
SPACE AVAIL?
NO
510
GOTO FIG 6
522
SEARCH FOR MSGRCV WAITER
WAITER FOUND?
NO
CALL CHAIN FOR MFIRST
516
YES
514
524
NO
PLO ASSIGN TO WAITER SEE FIG 7A
518
PLO OK?
NO
SEARCH
YES
520
YES
POST WAITER
CALL UNLOCK & RETURN
526
528

Fig 5

MSGSND NO SPACE AVAILABLE

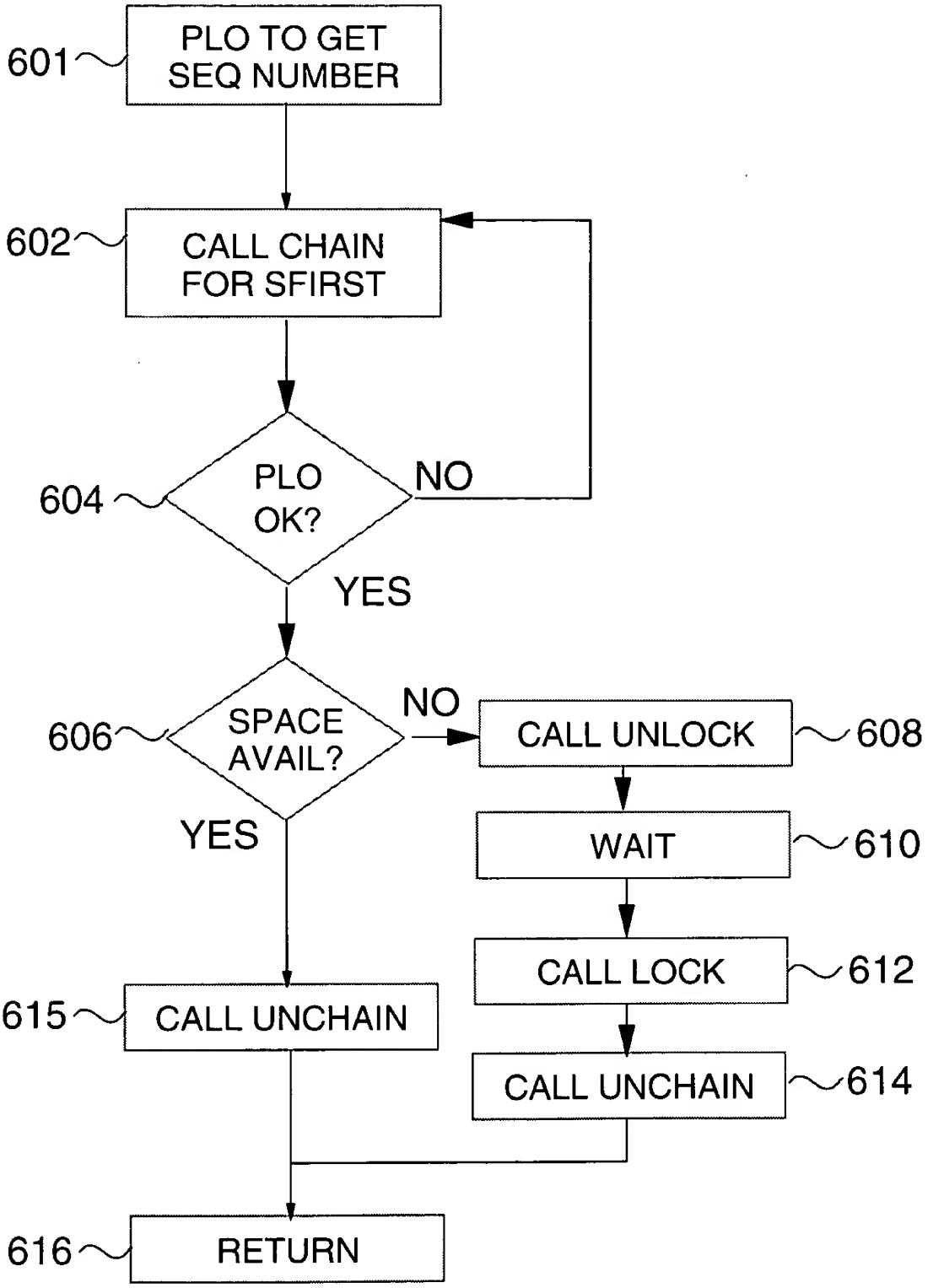

Fig 6

PLO ASSIGN MESSAGE TO WAITER - BEFORE

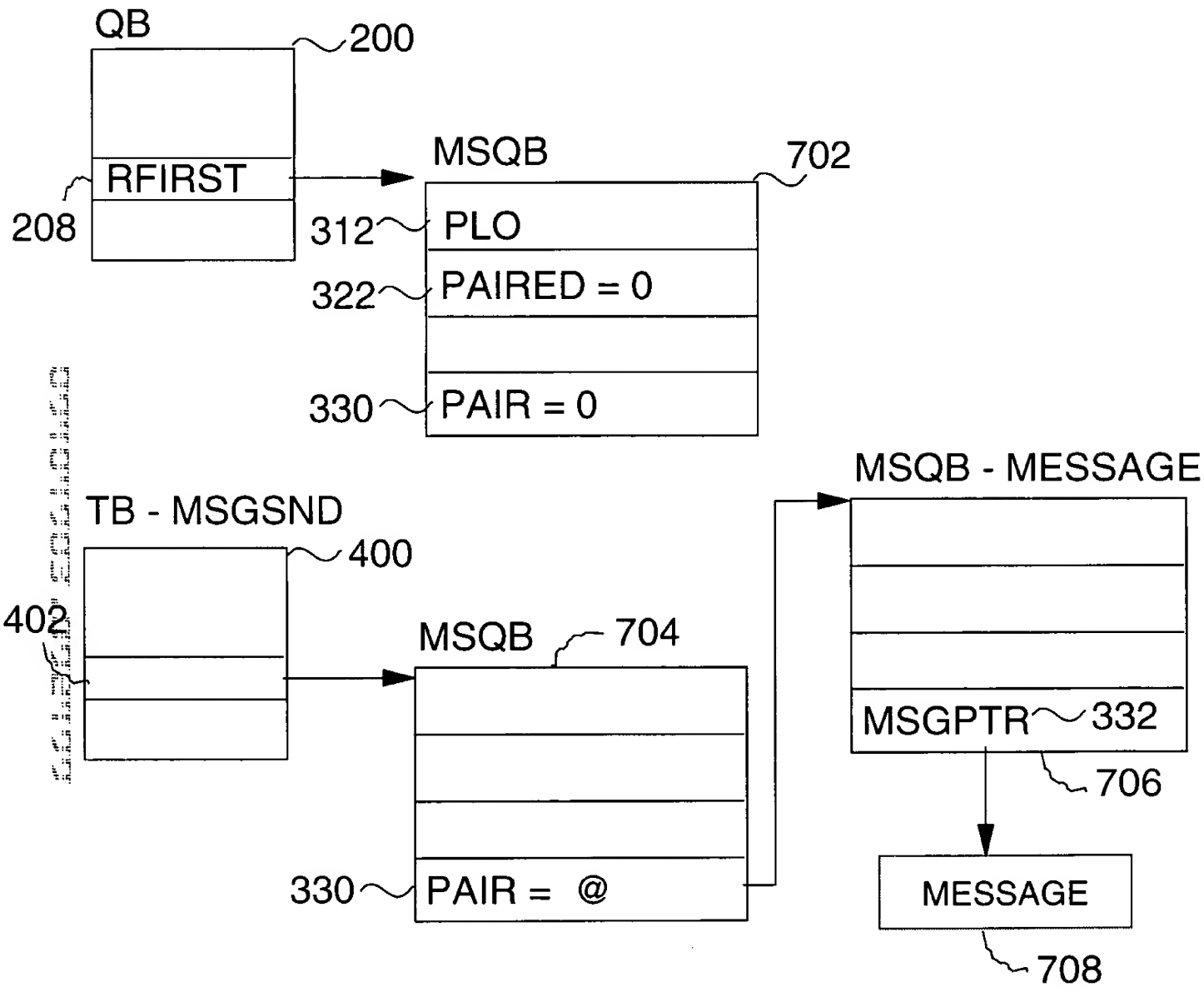

Fig 7A

PLO ASSIGN MESSAGE TO WAITER - AFTER

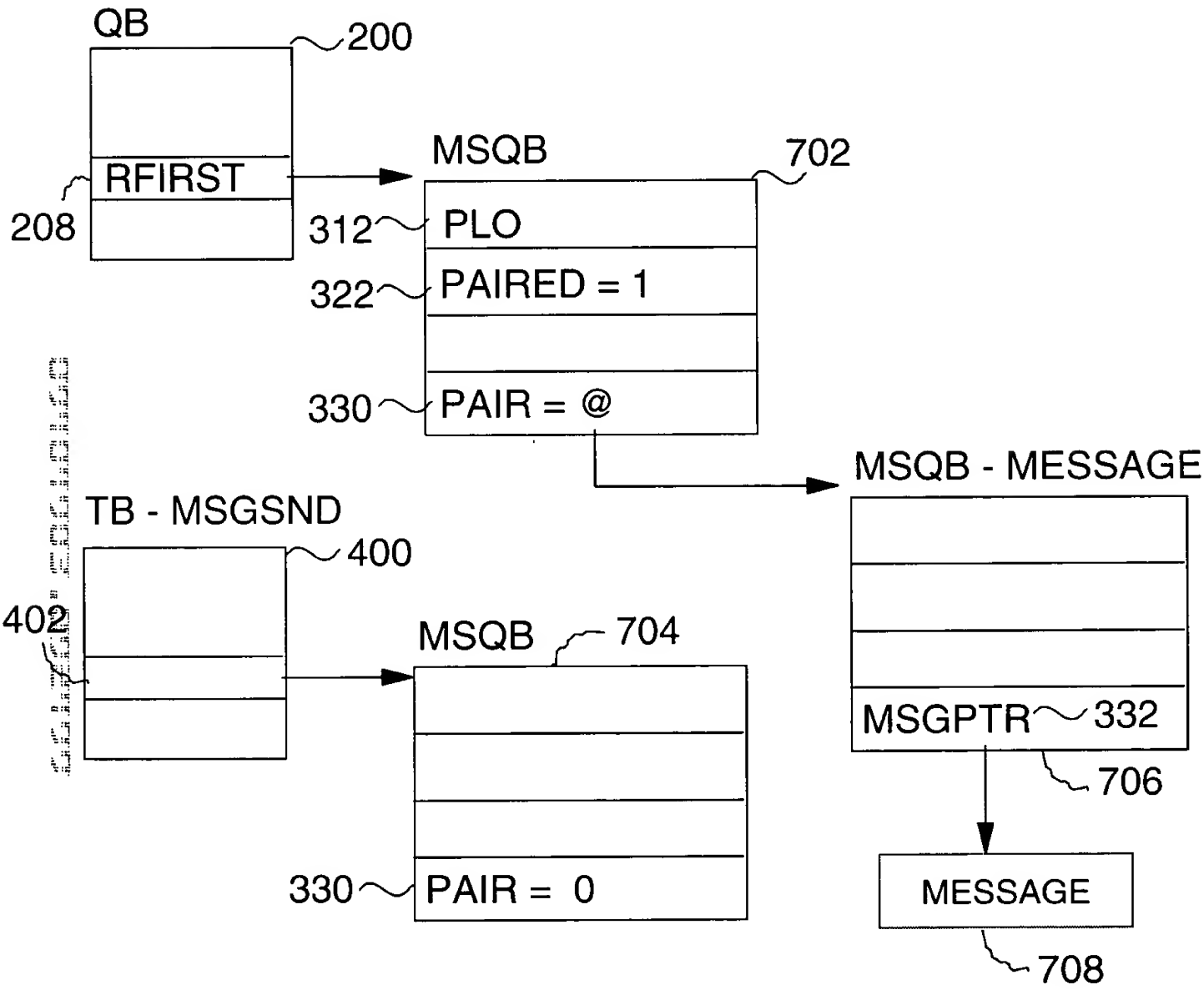

Fig 7B

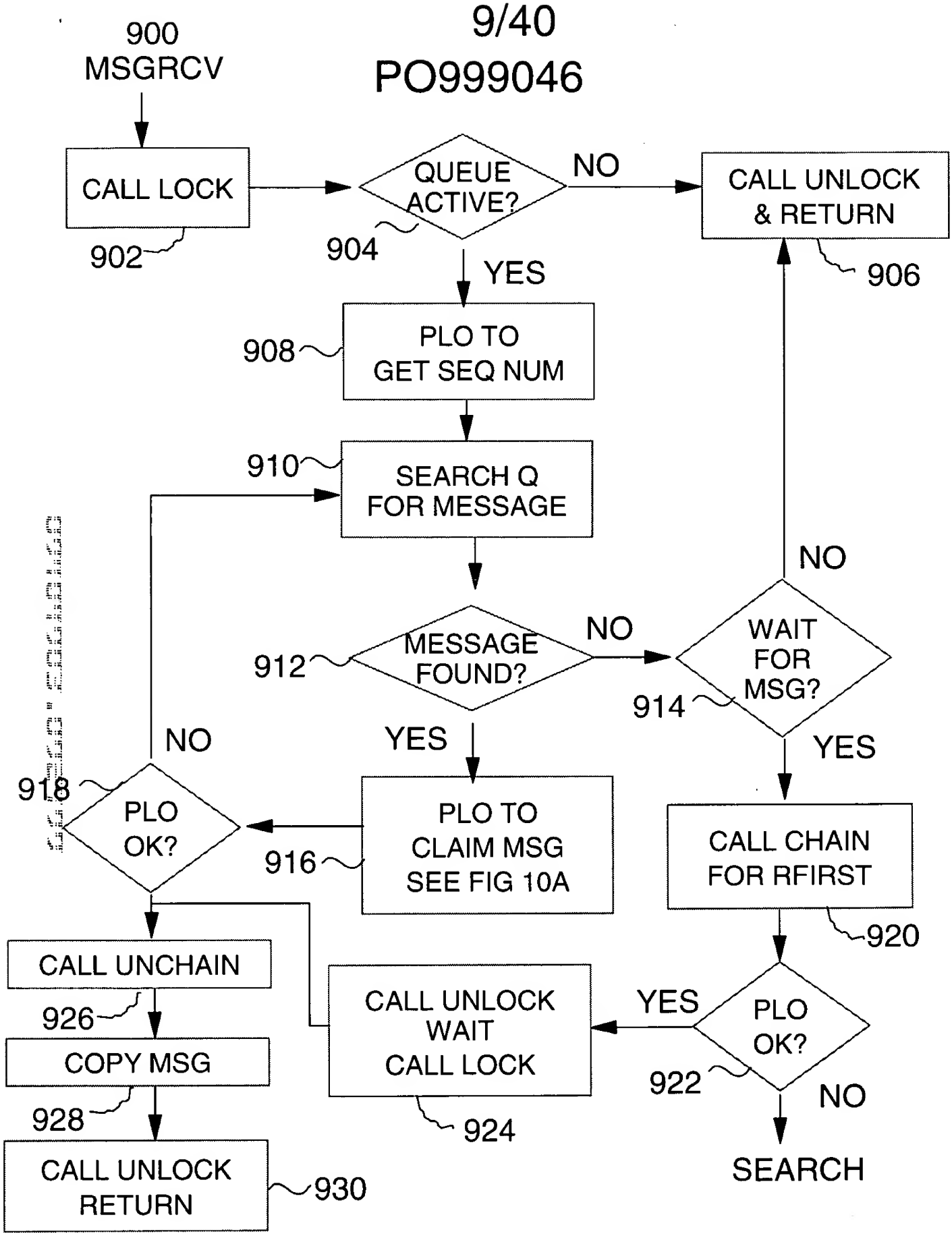
900
MSGRCV
CALL LOCK
902
QUEUE ACTIVE?
904
NO
CALL UNLOCK & RETURN
906
YES
908
PLO TO GET SEQ NUM
910
SEARCH Q FOR MESSAGE
912
MESSAGE FOUND?
NO
914
WAIT FOR MSG?
NO
YES
YES
NO
918
PLO OK?
916
PLO TO CLAIM MSG SEE FIG 10A
CALL CHAIN FOR RFIRST
920
CALL UNCHAIN
926
COPY MSG
928
CALL UNLOCK RETURN
930
CALL UNLOCK WAIT CALL LOCK
924
YES
PLO OK?
922
NO
SEARCH

Fig 9

PLO TO ASSIGN MESSAGE TO CALLER - BEFORE

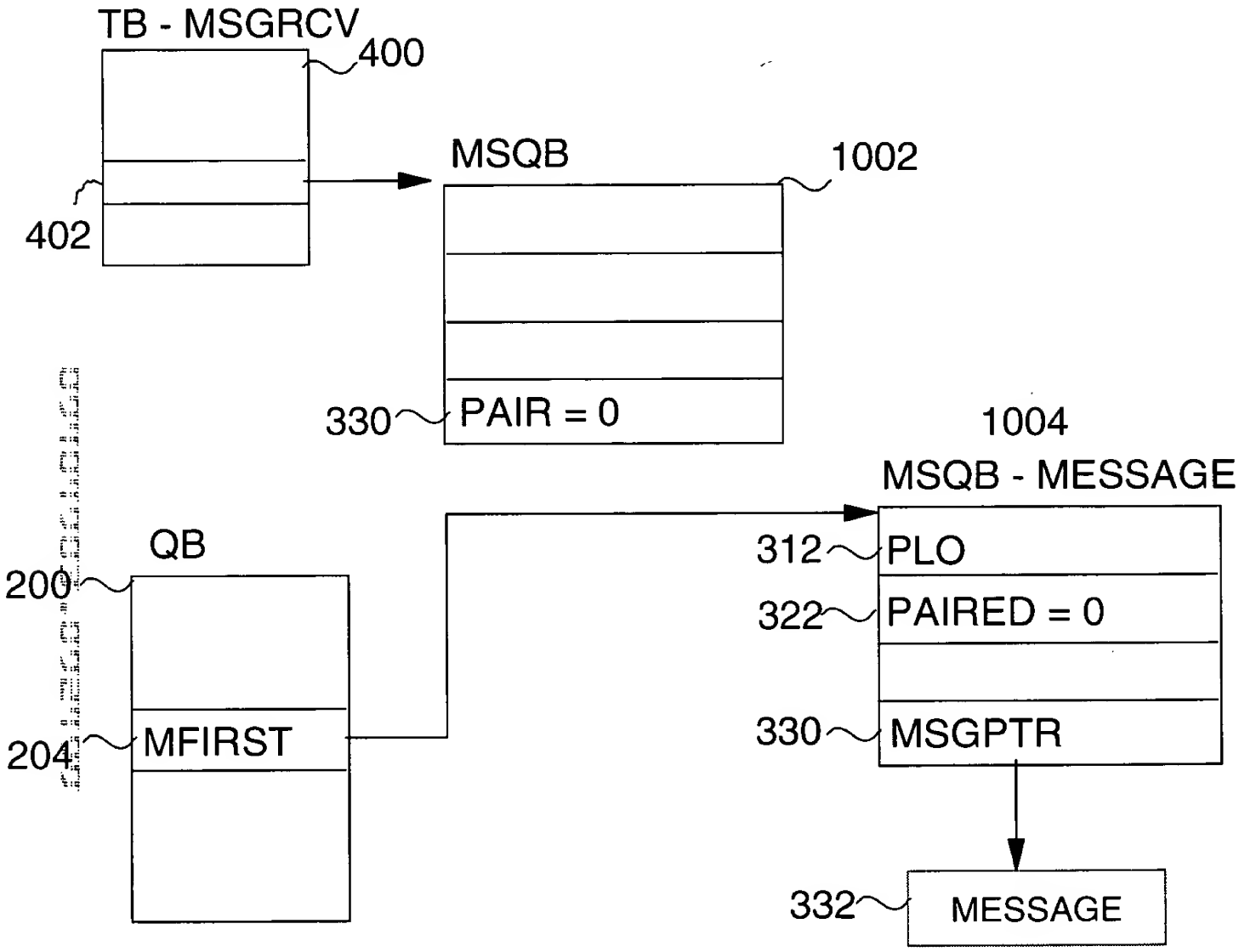

Fig 10A

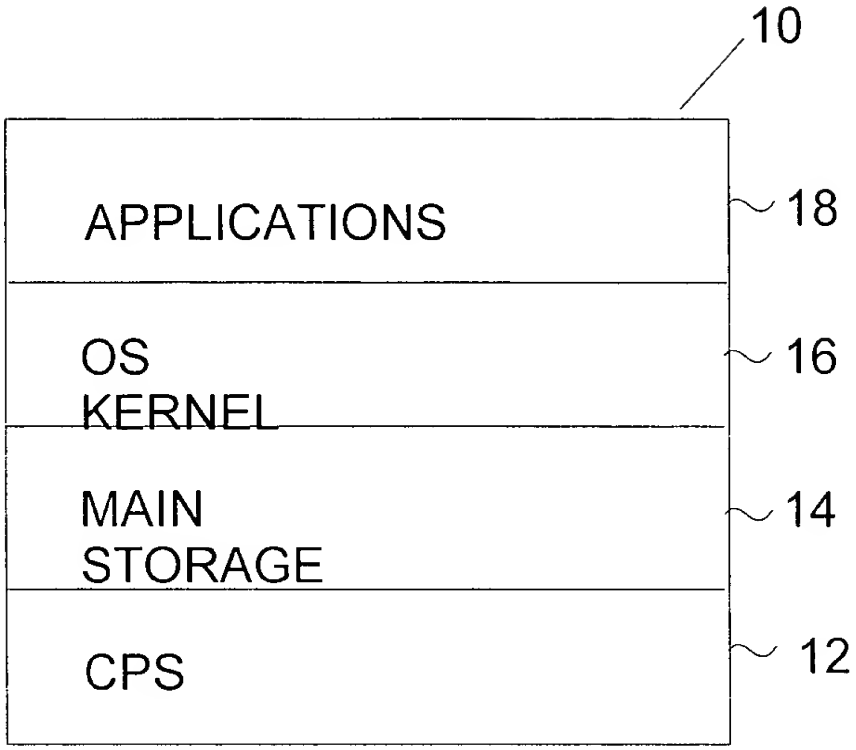

Fig 11

PLO TO ASSIGN MESSAGE TO CALLER - AFTER

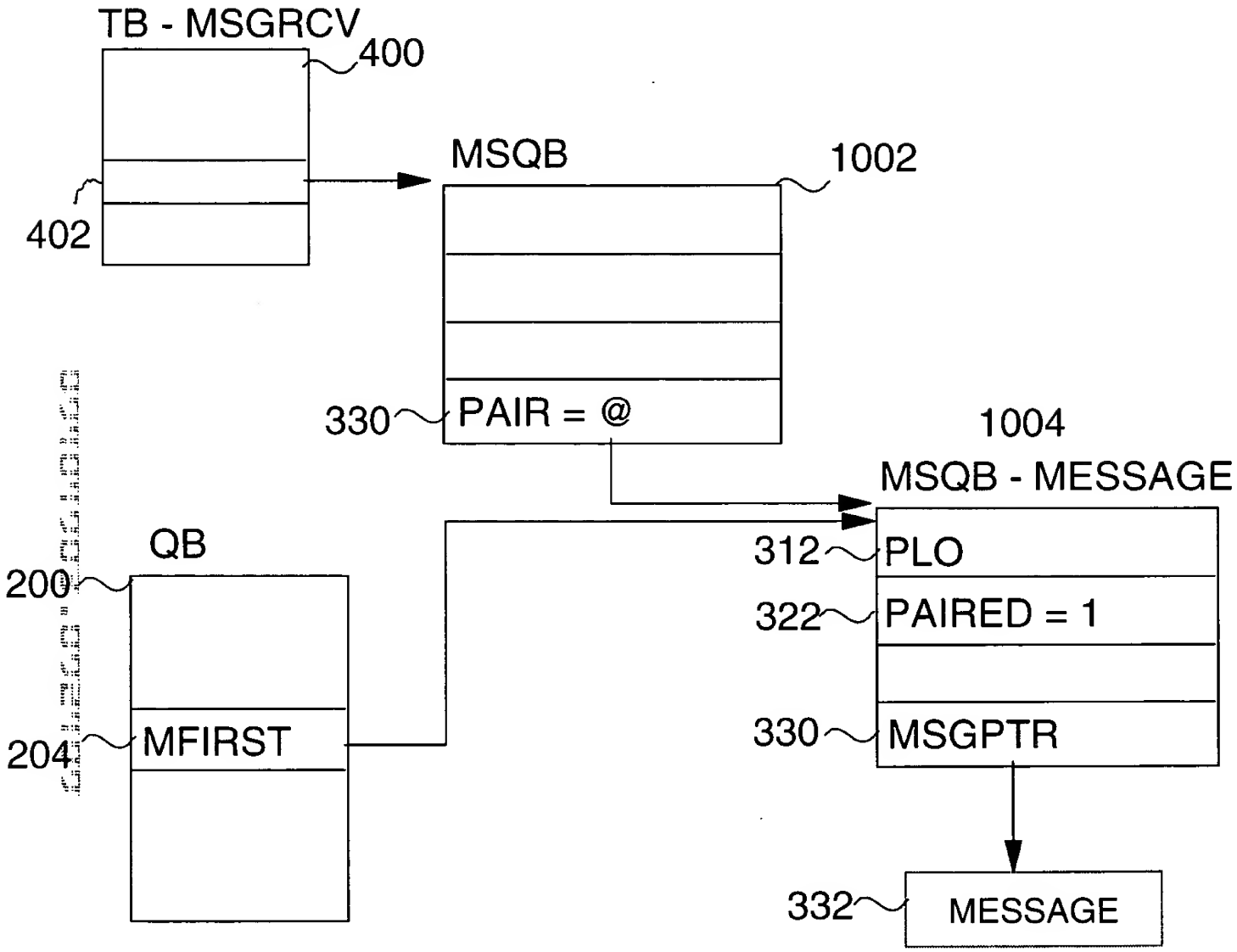

Fig 10B

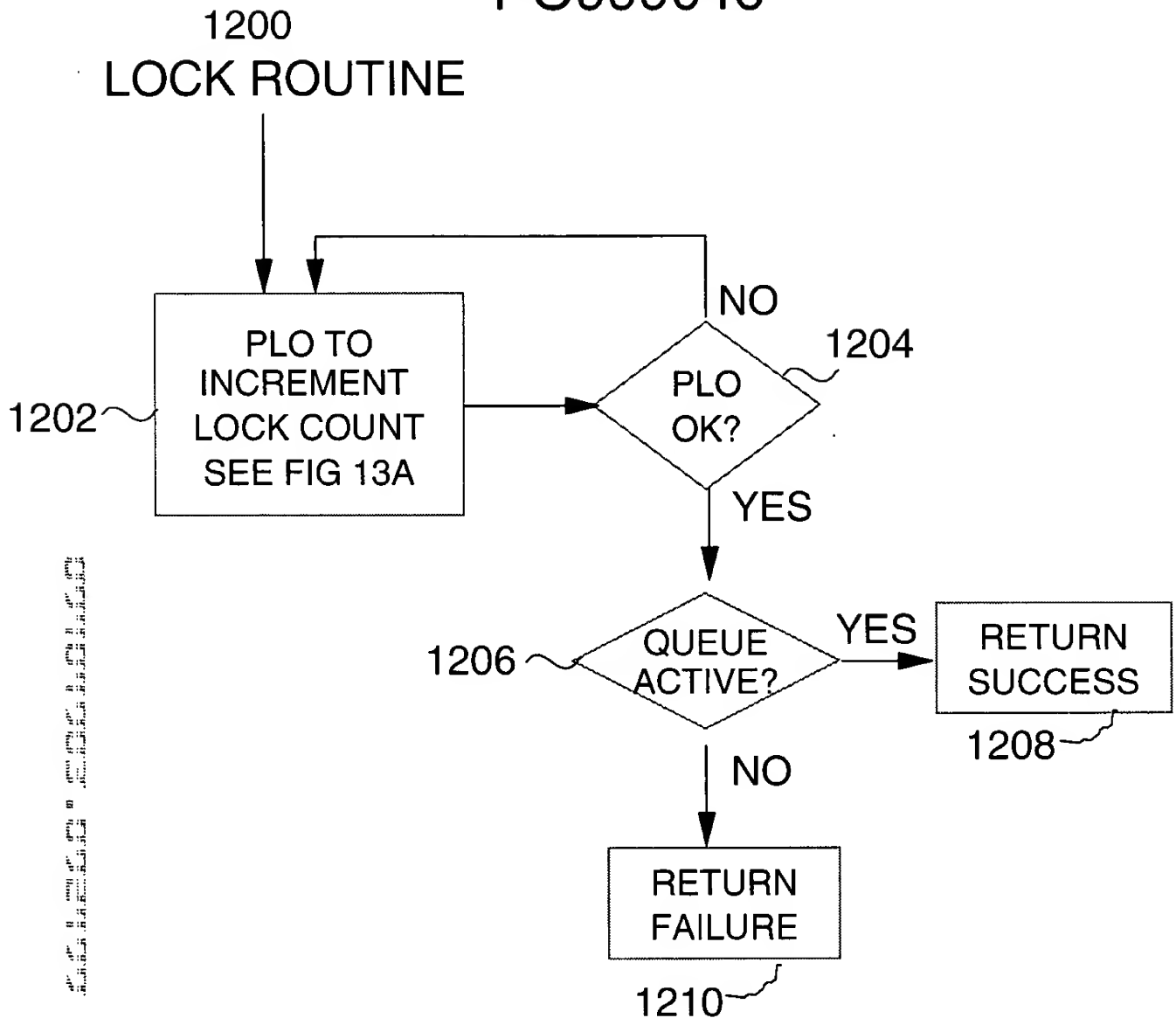
1200
LOCK ROUTINE
PLO TO INCREMENT LOCK COUNT SEE FIG 13A
1202
NO
PLO OK?
1204
YES
QUEUE ACTIVE?
1206
YES
RETURN SUCCESS
1208
NO
RETURN FAILURE
1210

Fig 12

LOCK PLO STATE - BEFORE

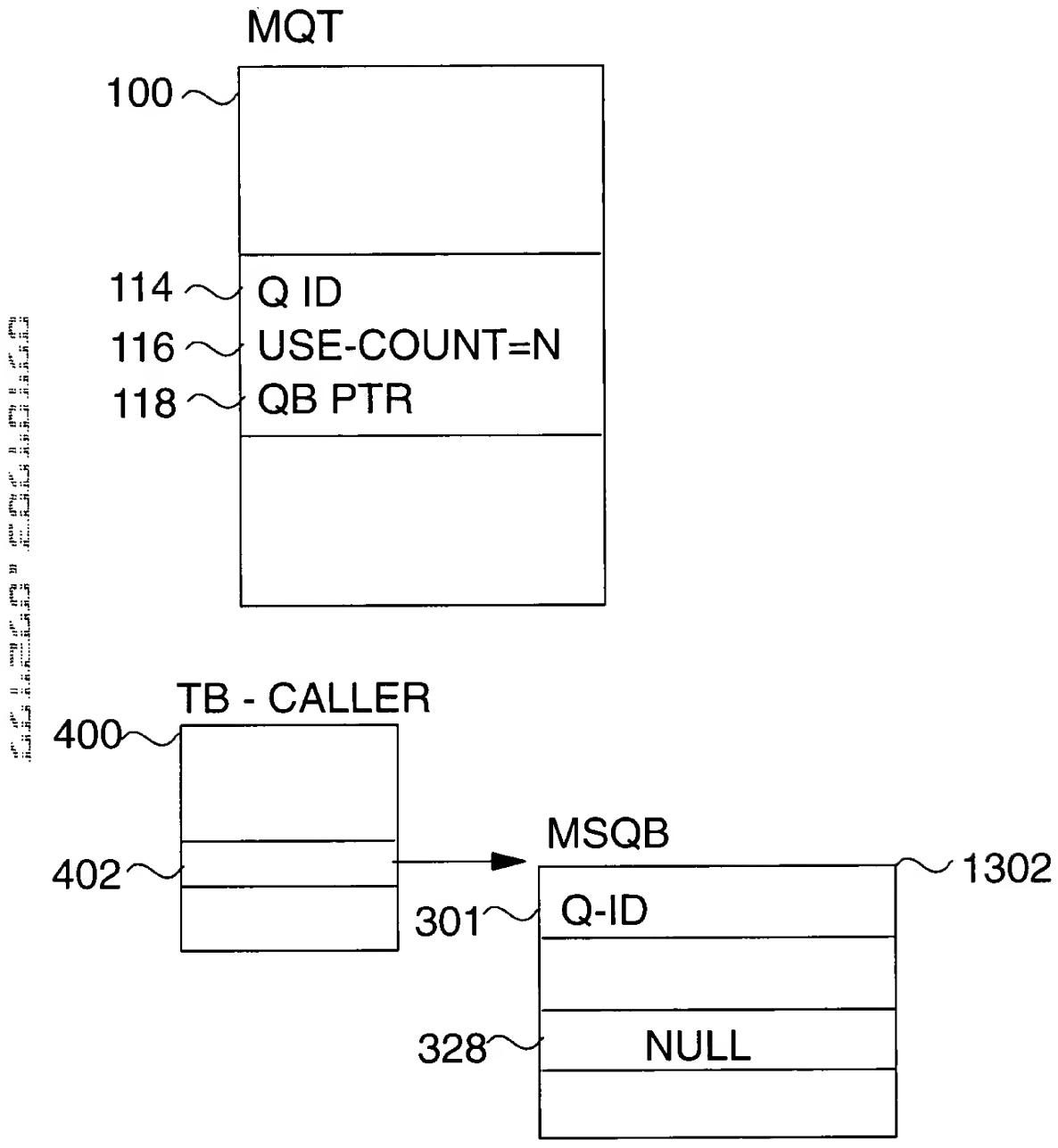

Fig 13A

LOCK PLO STATE - AFTER

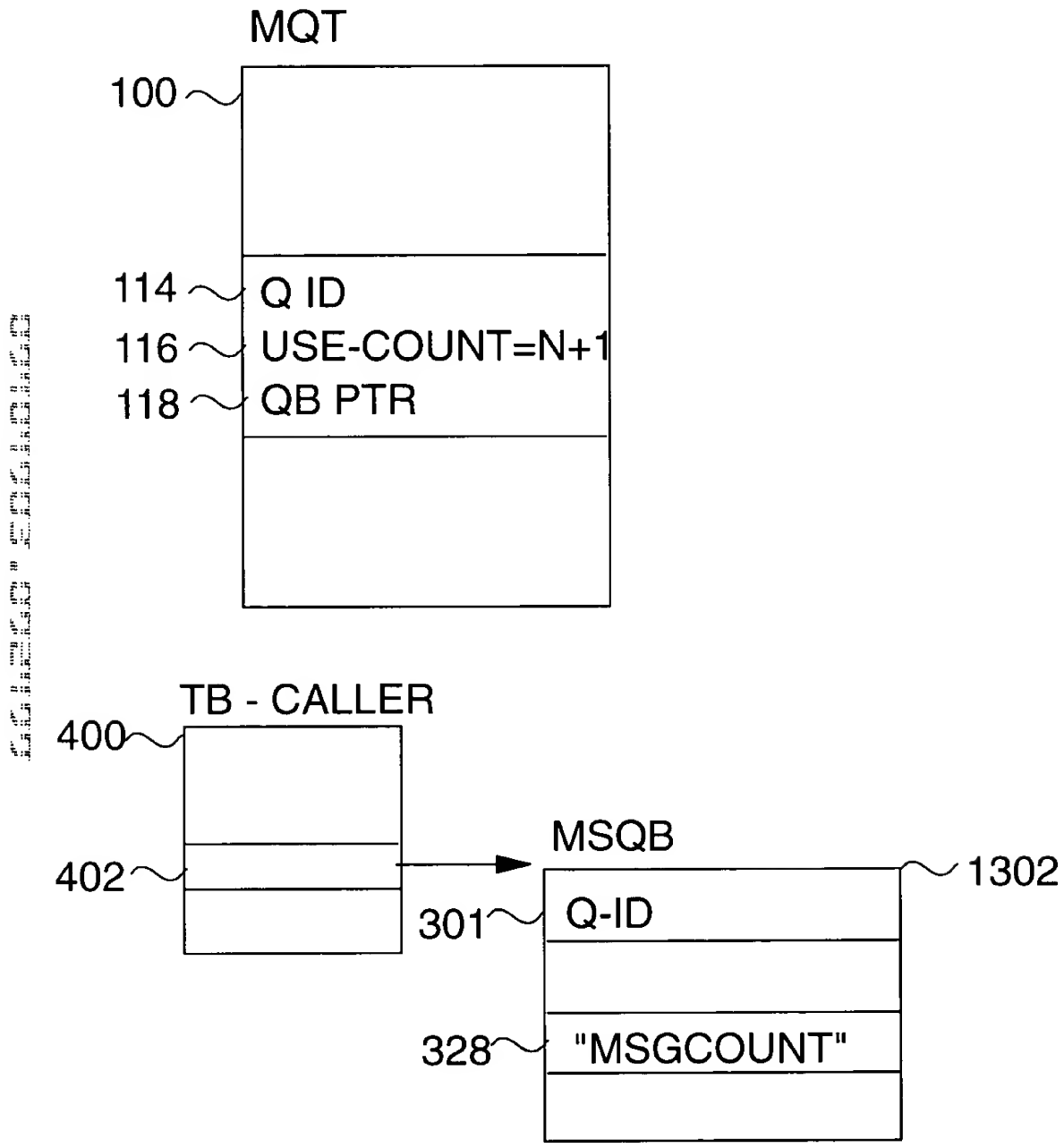

Fig 13B

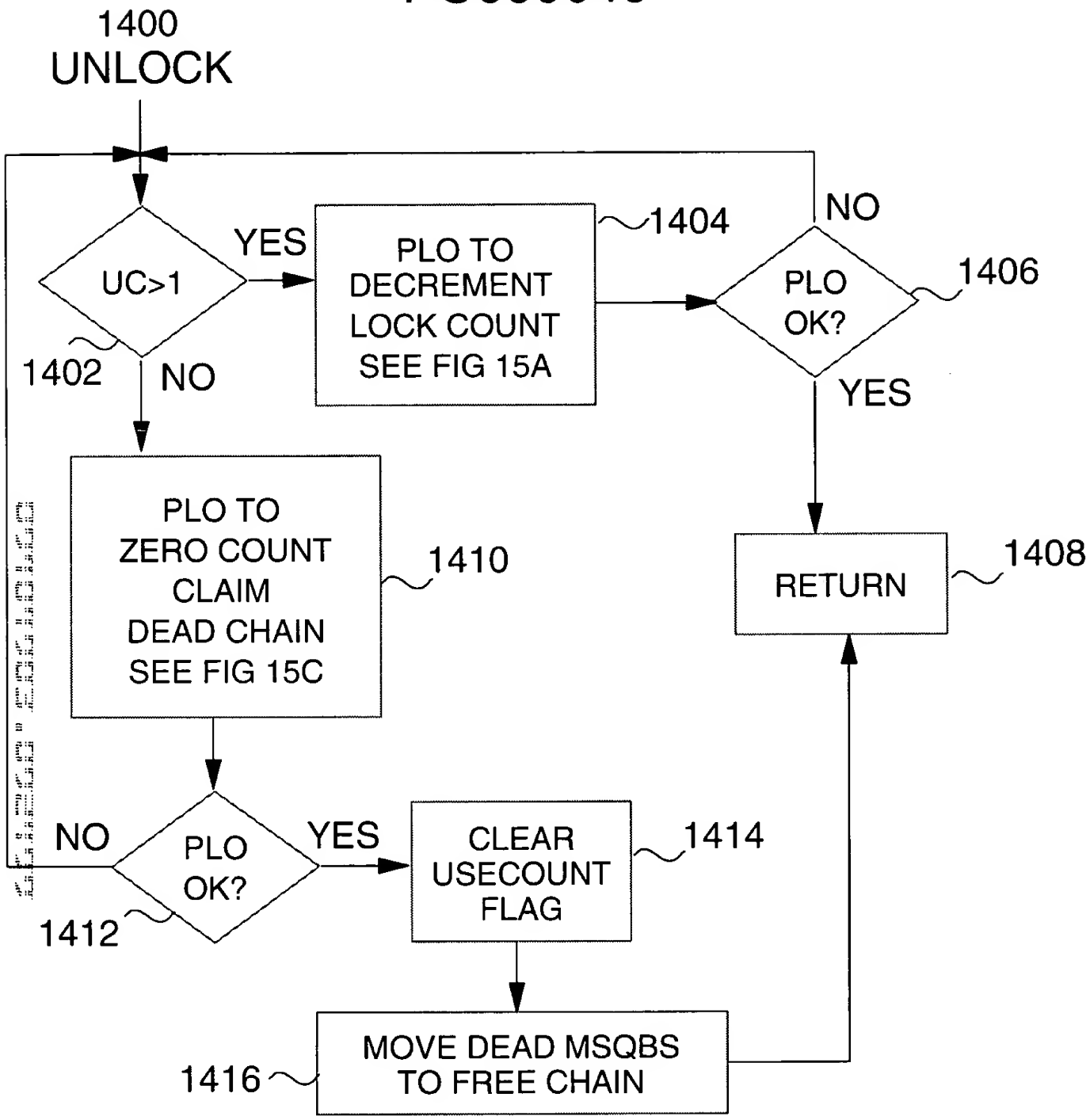
1400
UNLOCK
UC>1
YES
NO
1402
PLO TO
DECREMENT
LOCK COUNT
SEE FIG 15A
1404
PLO
OK?
NO
YES
1406
PLO TO
ZERO COUNT
CLAIM
DEAD CHAIN
SEE FIG 15C
1410
RETURN
1408
PLO
OK?
NO
YES
1412
CLEAR
USECOUNT
FLAG
1414
MOVE DEAD MSQBS
TO FREE CHAIN
1416

Fig 14

UNLOCK PLO COUNT > 1 - BEFORE

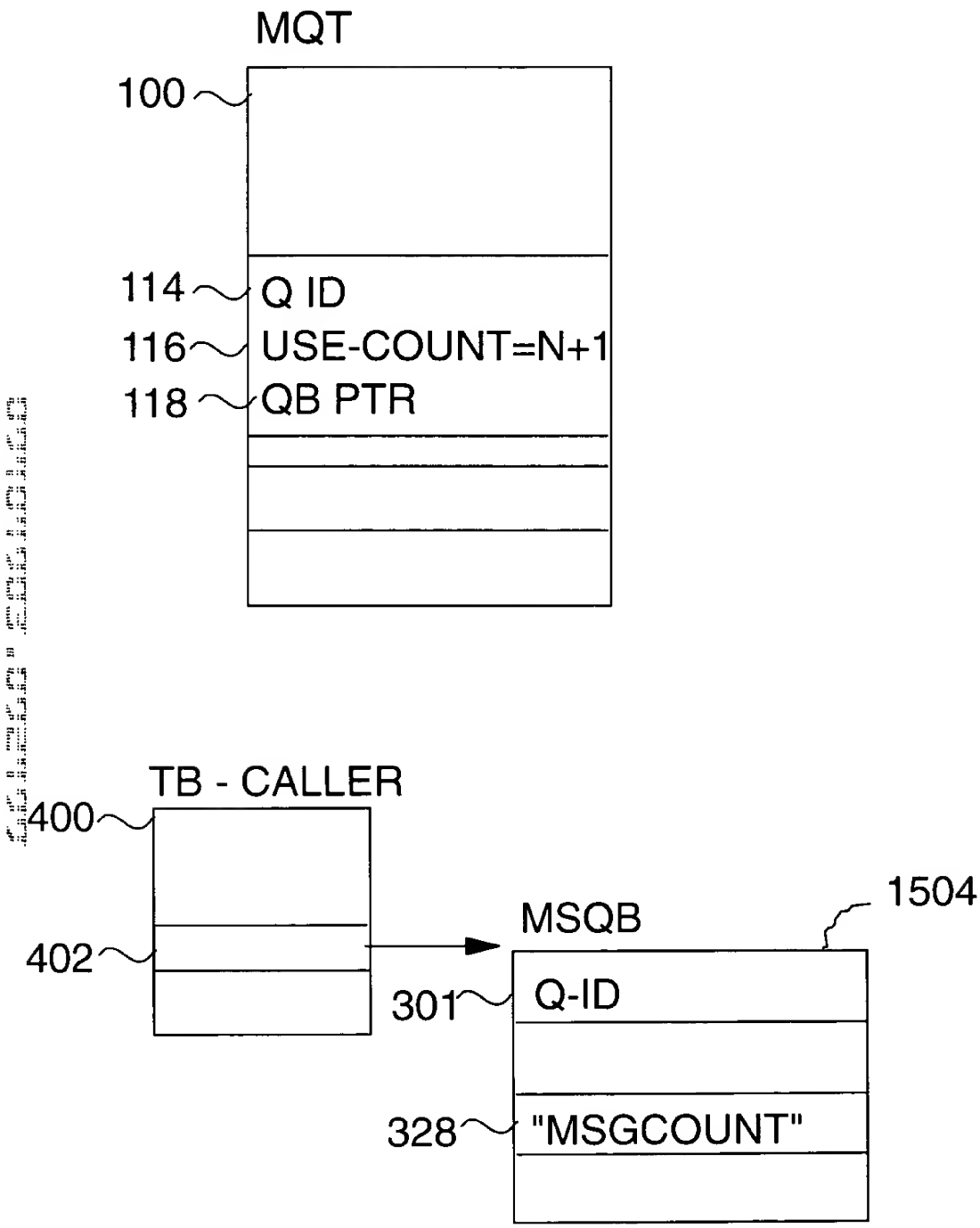

Fig 15A

UNLOCK PLO CNT > 1 - AFTER

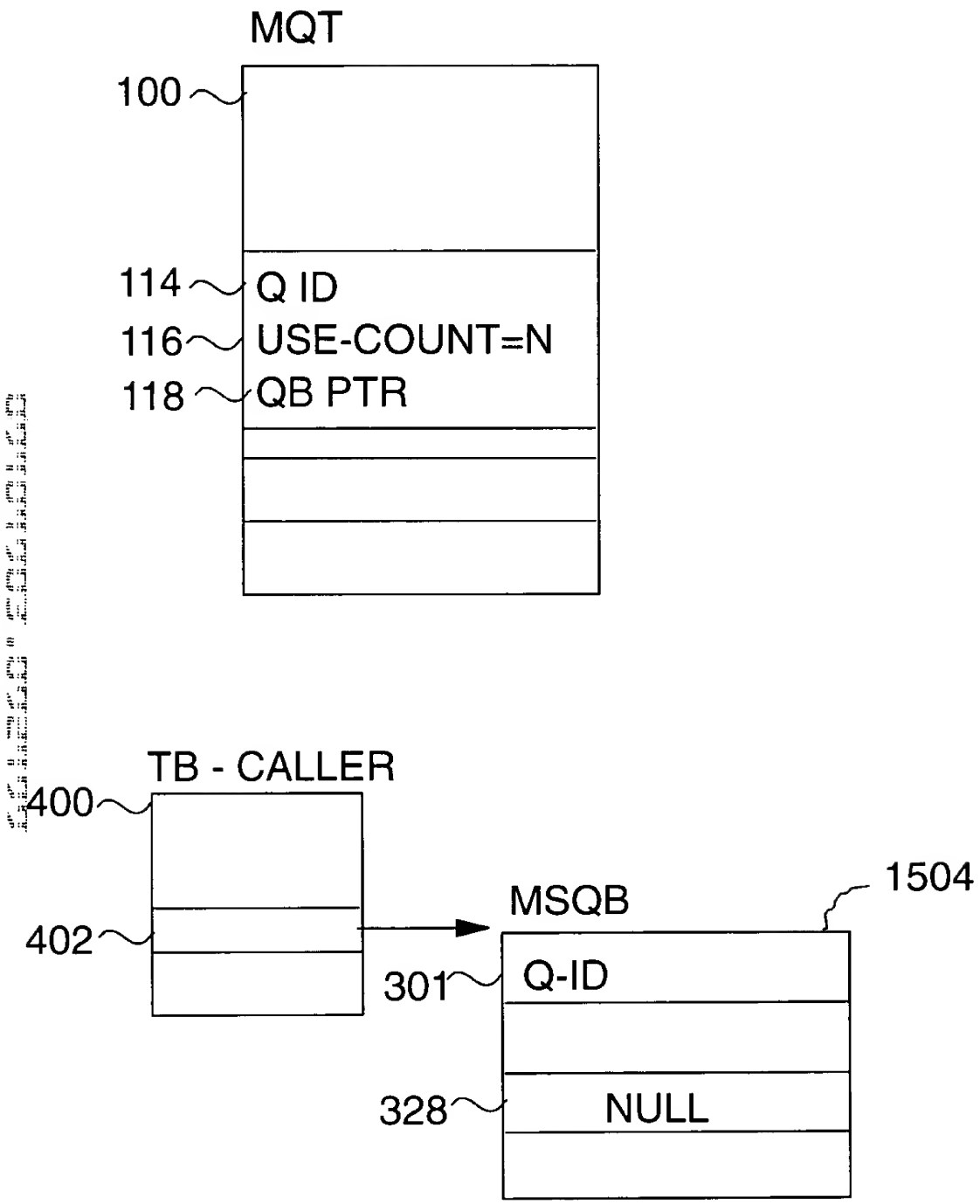

Fig 15B

UNLOCK PLO COUNT = 1 - BEFORE

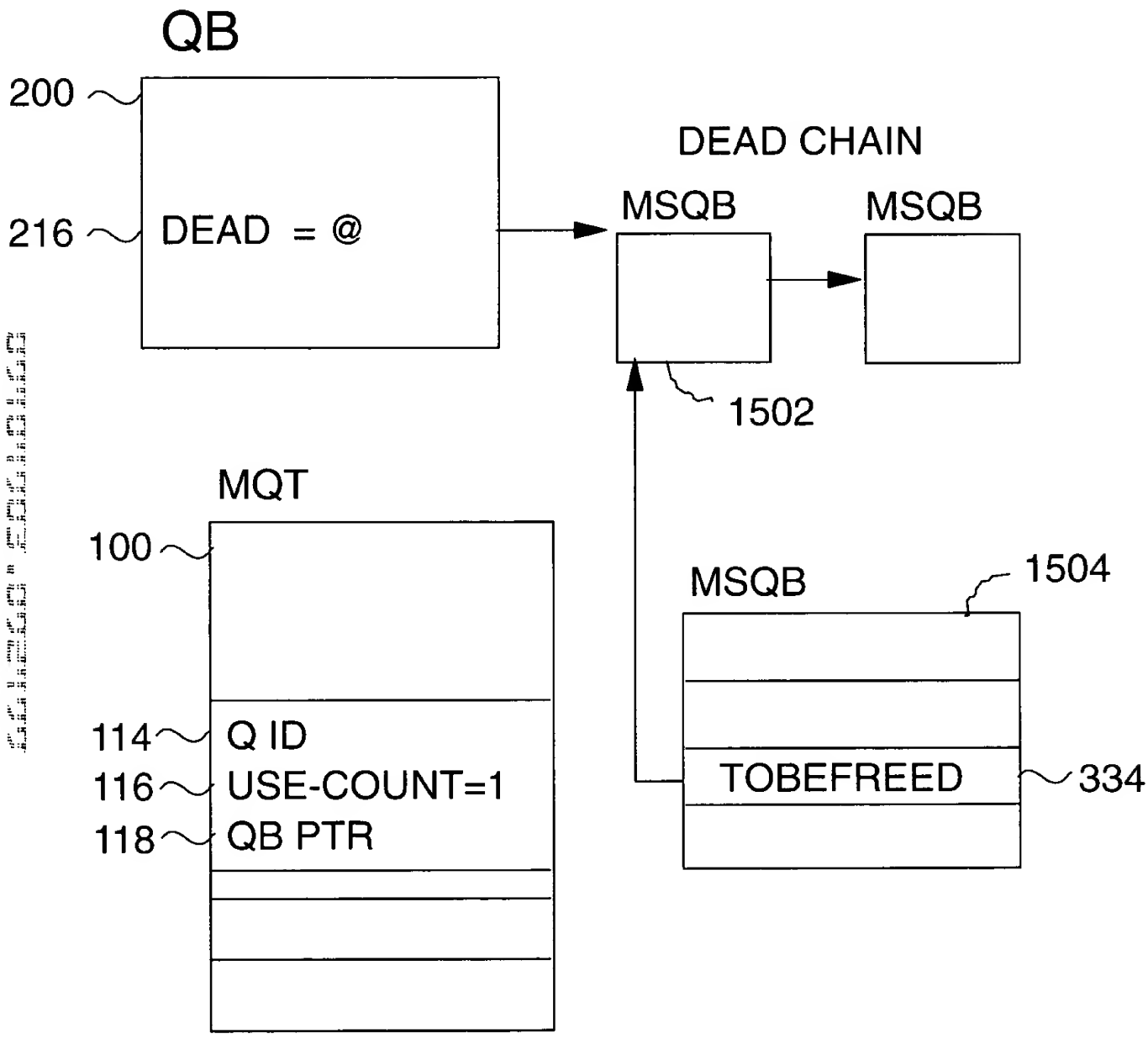

Fig 15C

UNLOCK PLO COUNT = 1 - AFTER

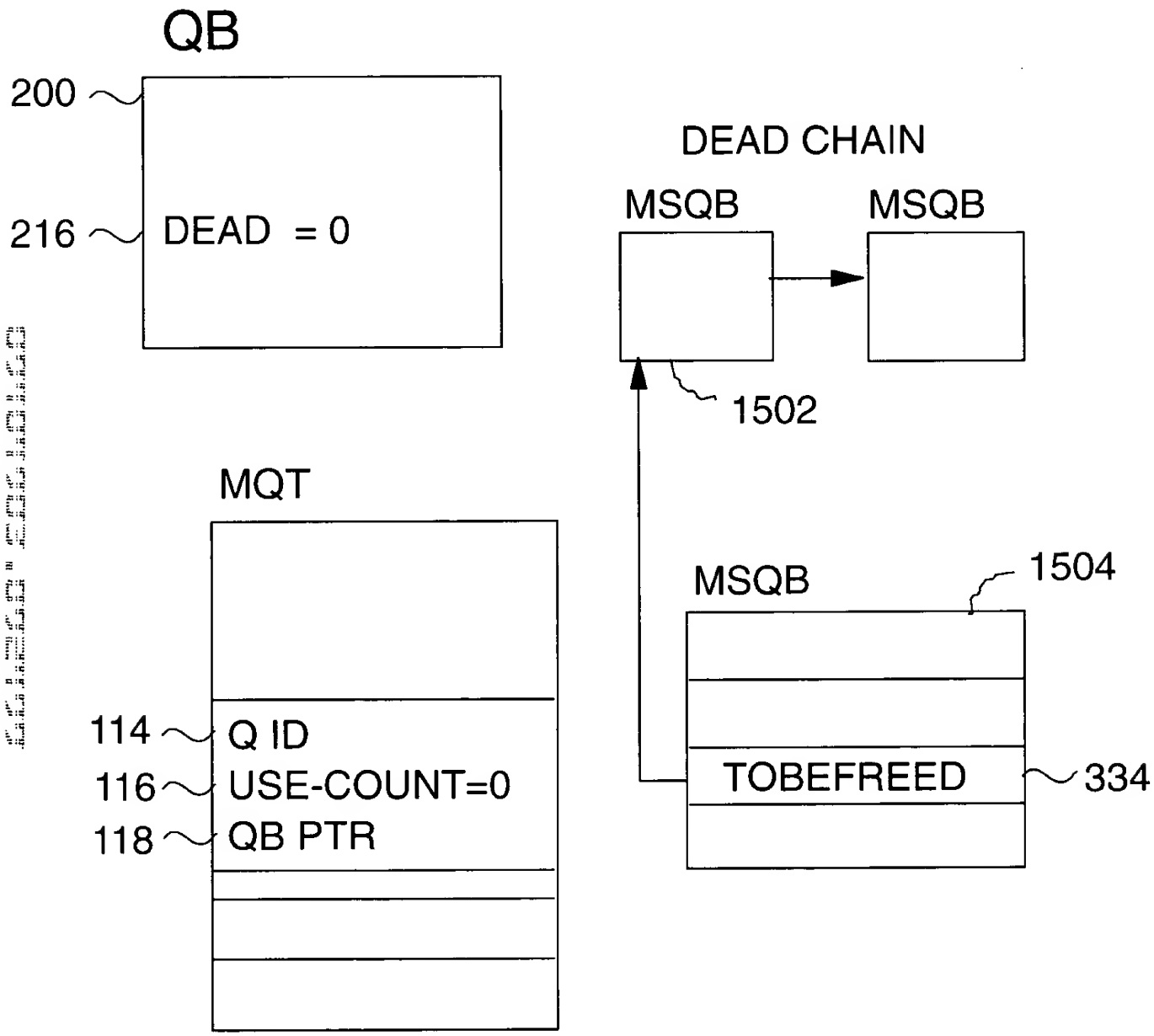

Fig 15D

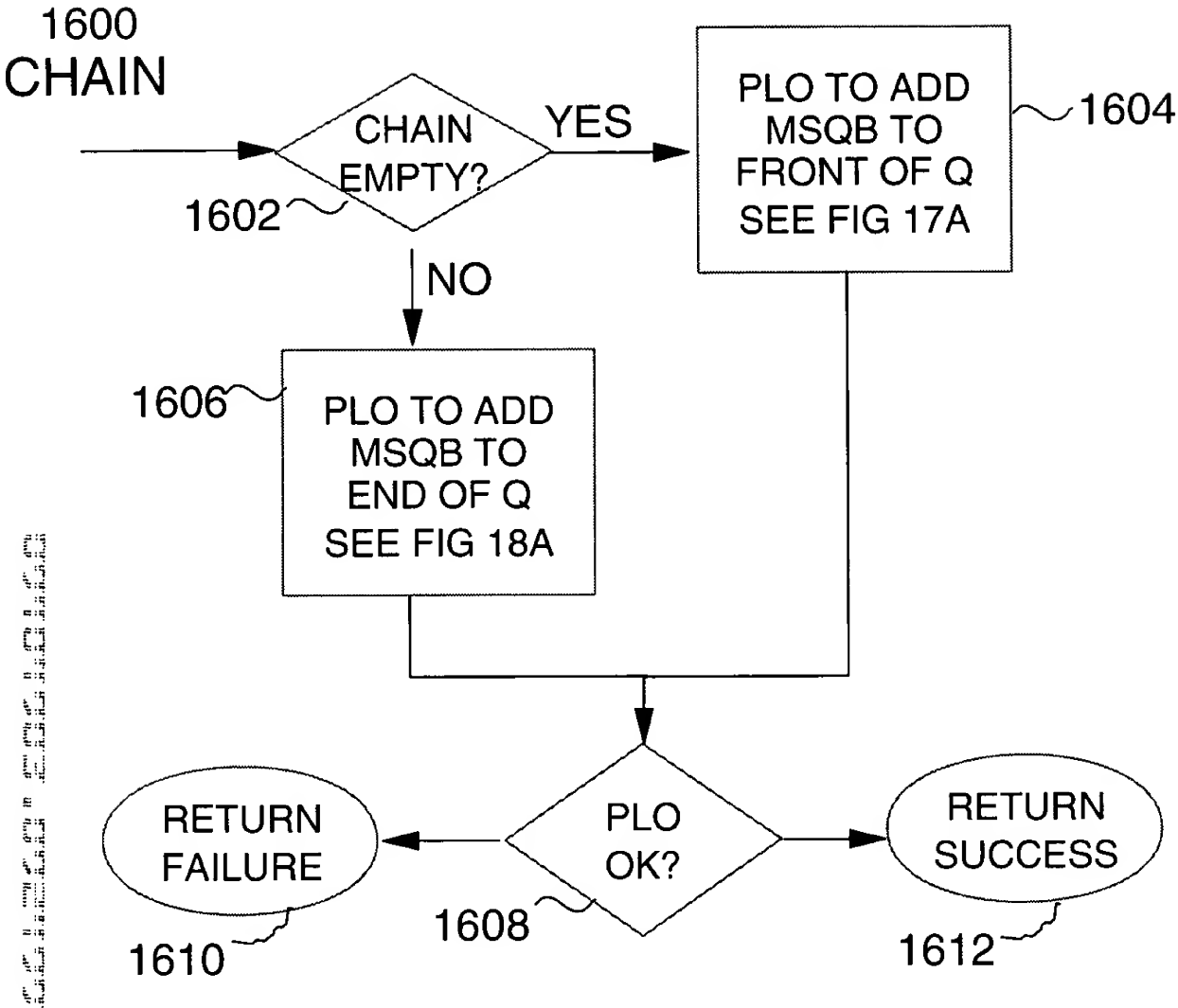
1600
CHAIN
CHAIN EMPTY?
1602
YES
NO
PLO TO ADD MSQB TO FRONT OF Q SEE FIG 17A
1604
1606
PLO TO ADD MSQB TO END OF Q SEE FIG 18A
PLO OK?
1608
RETURN FAILURE
1610
RETURN SUCCESS
1612

Fig 16

PLO CHAIN TO FRONT - BEFORE

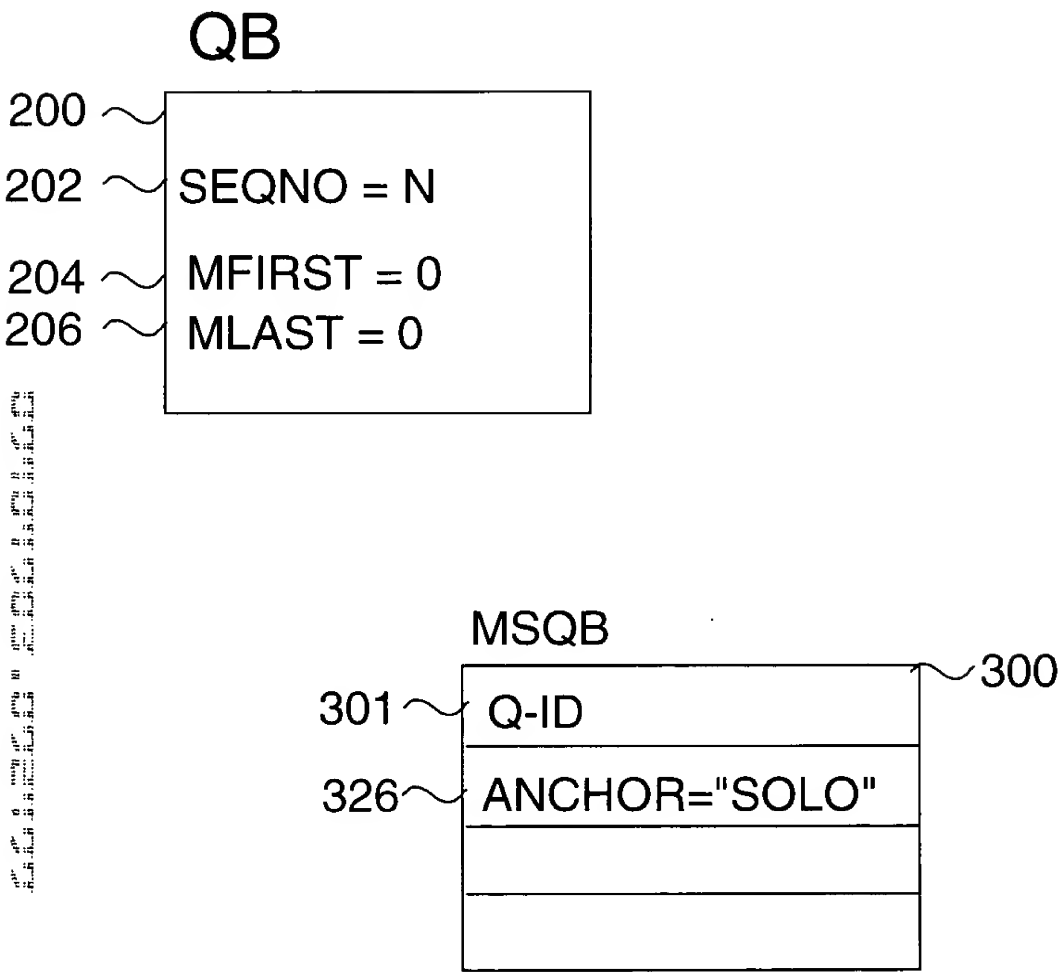

Fig 17A

PLO CHAIN TO FRONT - AFTER

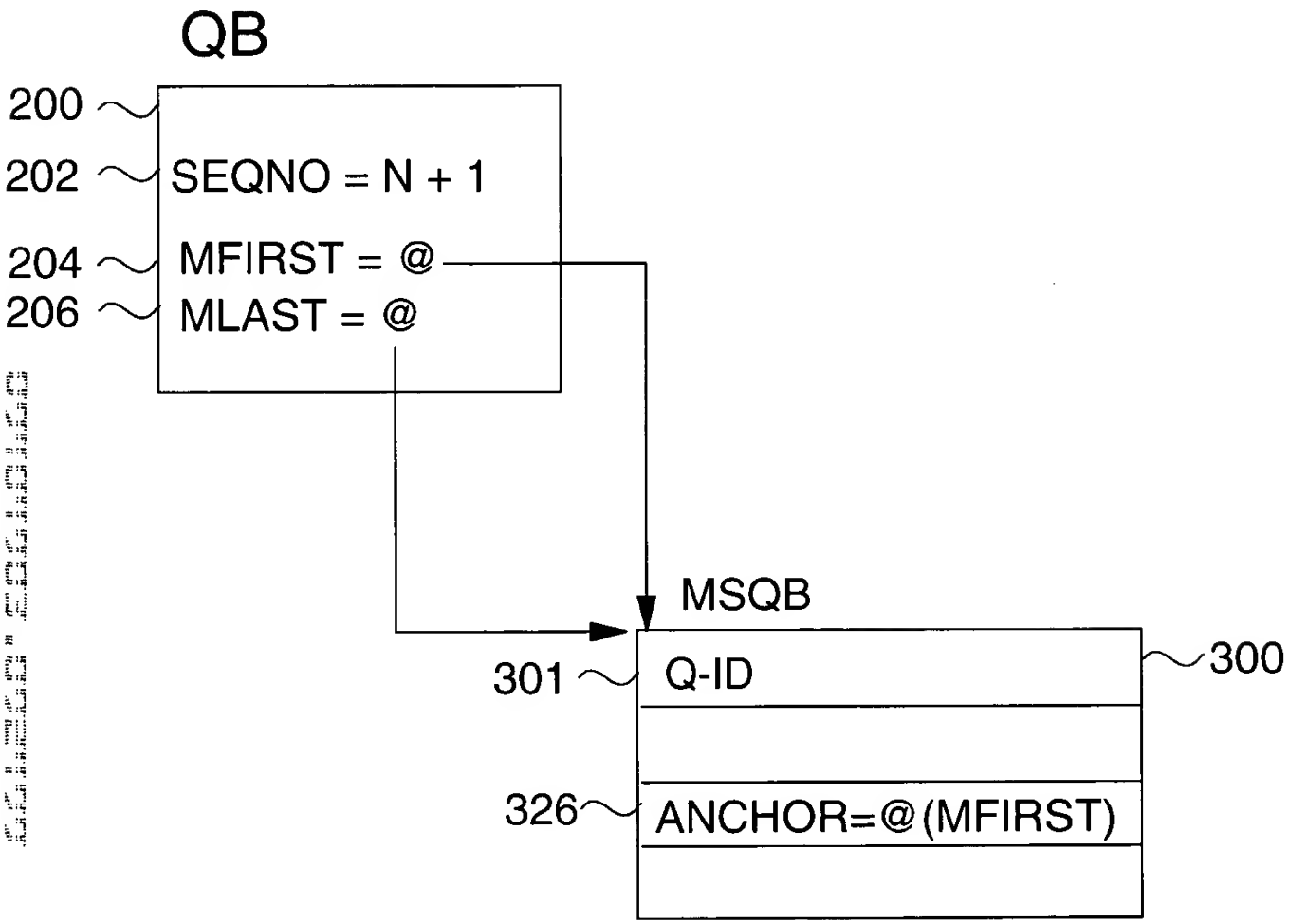

Fig 17B

PLO CHAIN TO END - BEFORE

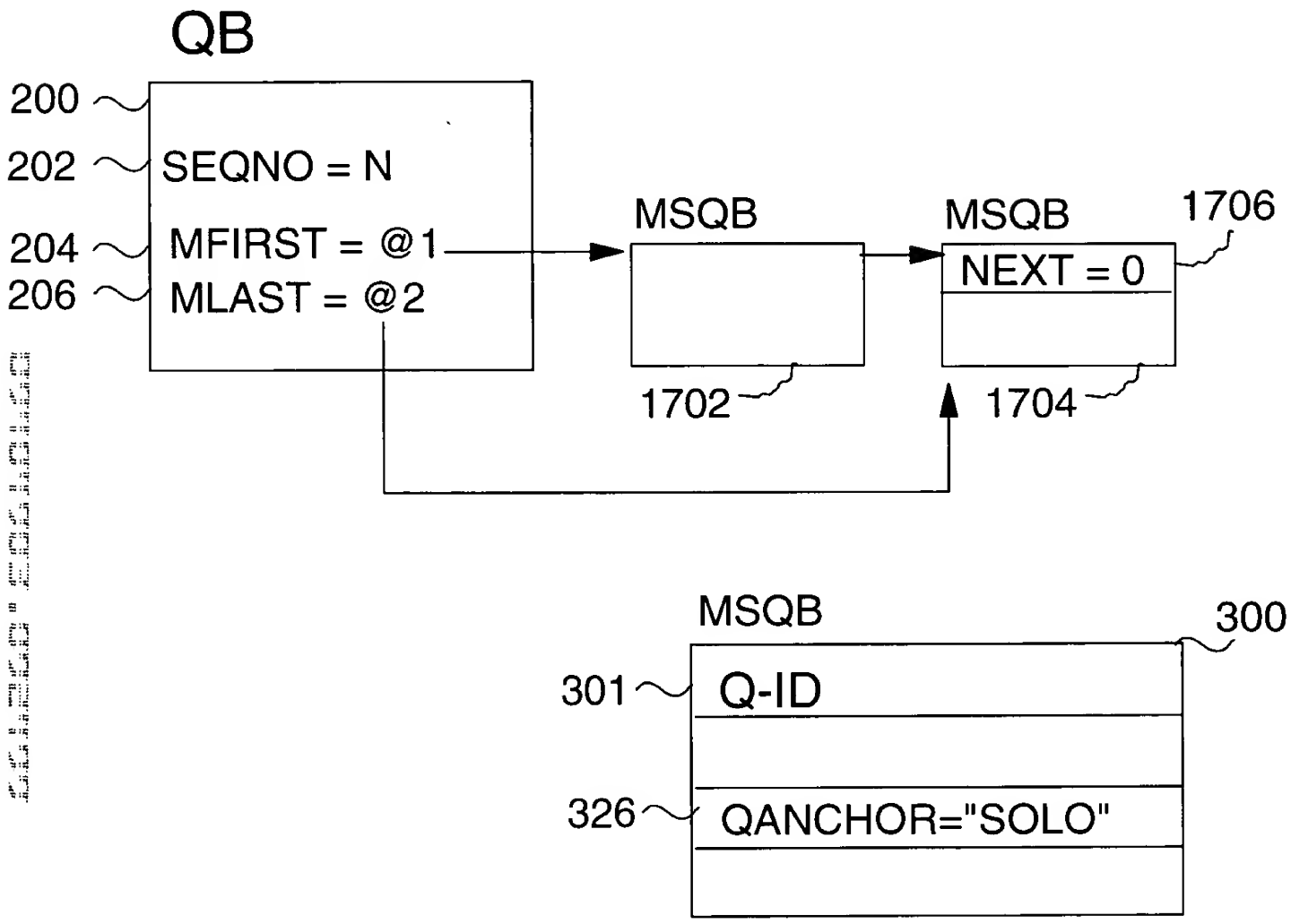

Fig 17C

PLO CHAIN TO END - AFTER

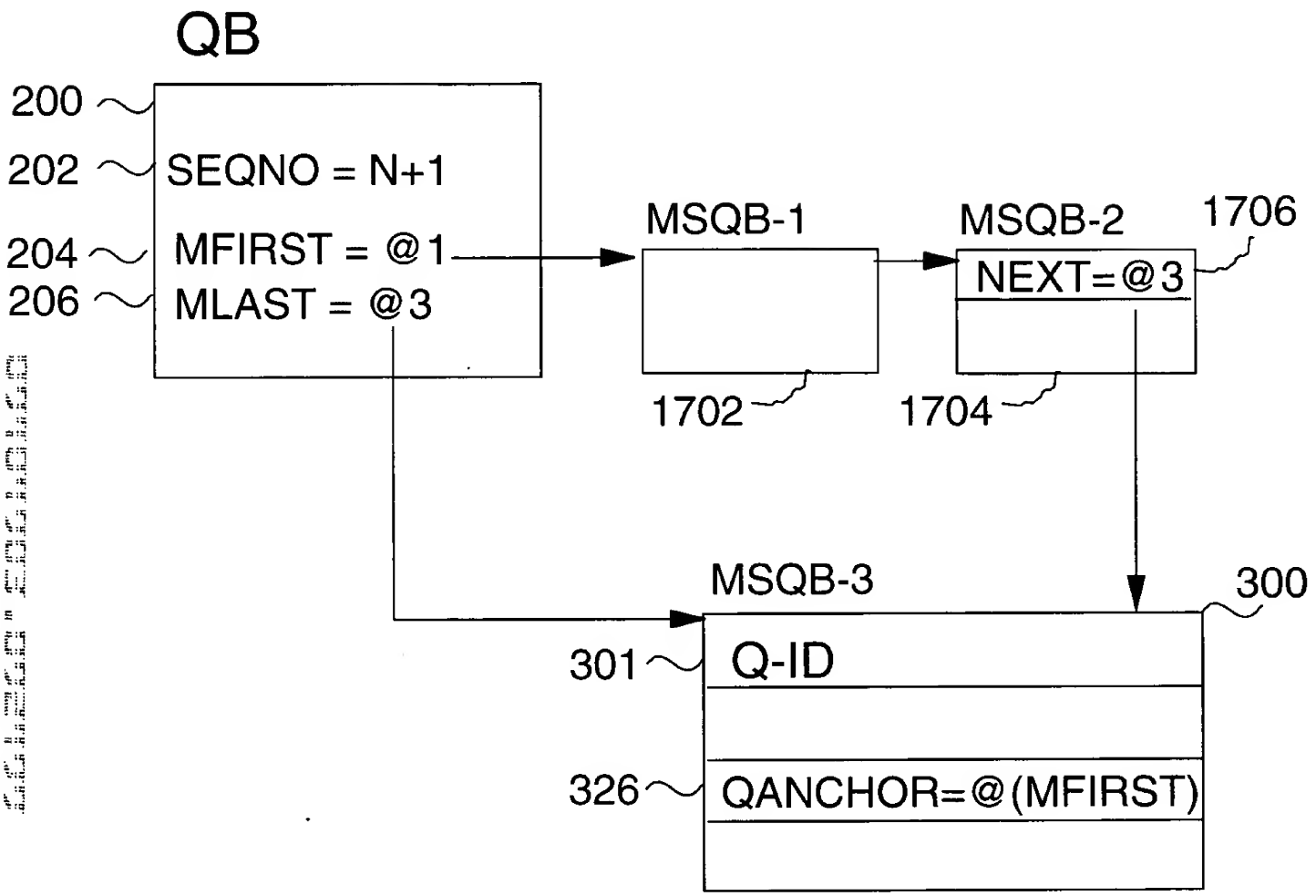

Fig 17D

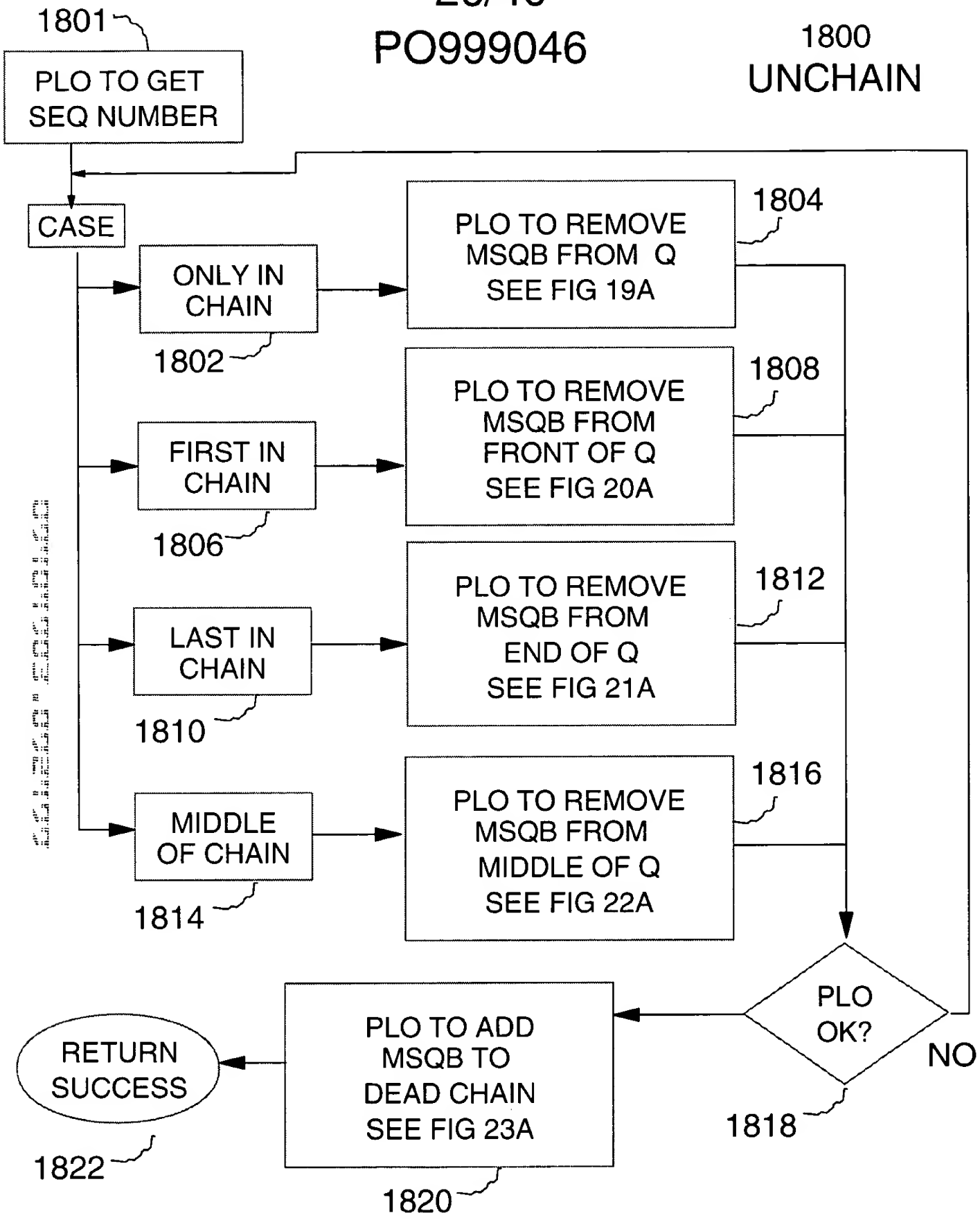
1800
UNCHAIN
1801
PLO TO GET SEQ NUMBER
CASE
ONLY IN CHAIN
1802
PLO TO REMOVE MSQB FROM Q SEE FIG 19A
1804
FIRST IN CHAIN
1806
PLO TO REMOVE MSQB FROM FRONT OF Q SEE FIG 20A
1808
LAST IN CHAIN
1810
PLO TO REMOVE MSQB FROM END OF Q SEE FIG 21A
1812
MIDDLE OF CHAIN
1814
PLO TO REMOVE MSQB FROM MIDDLE OF Q SEE FIG 22A
1816
PLO OK?
NO
1818
PLO TO ADD MSQB TO DEAD CHAIN SEE FIG 23A
1820
RETURN SUCCESS
1822

Fig 18

PLO UNCHAIN ONLY ELEMENT - BEFORE

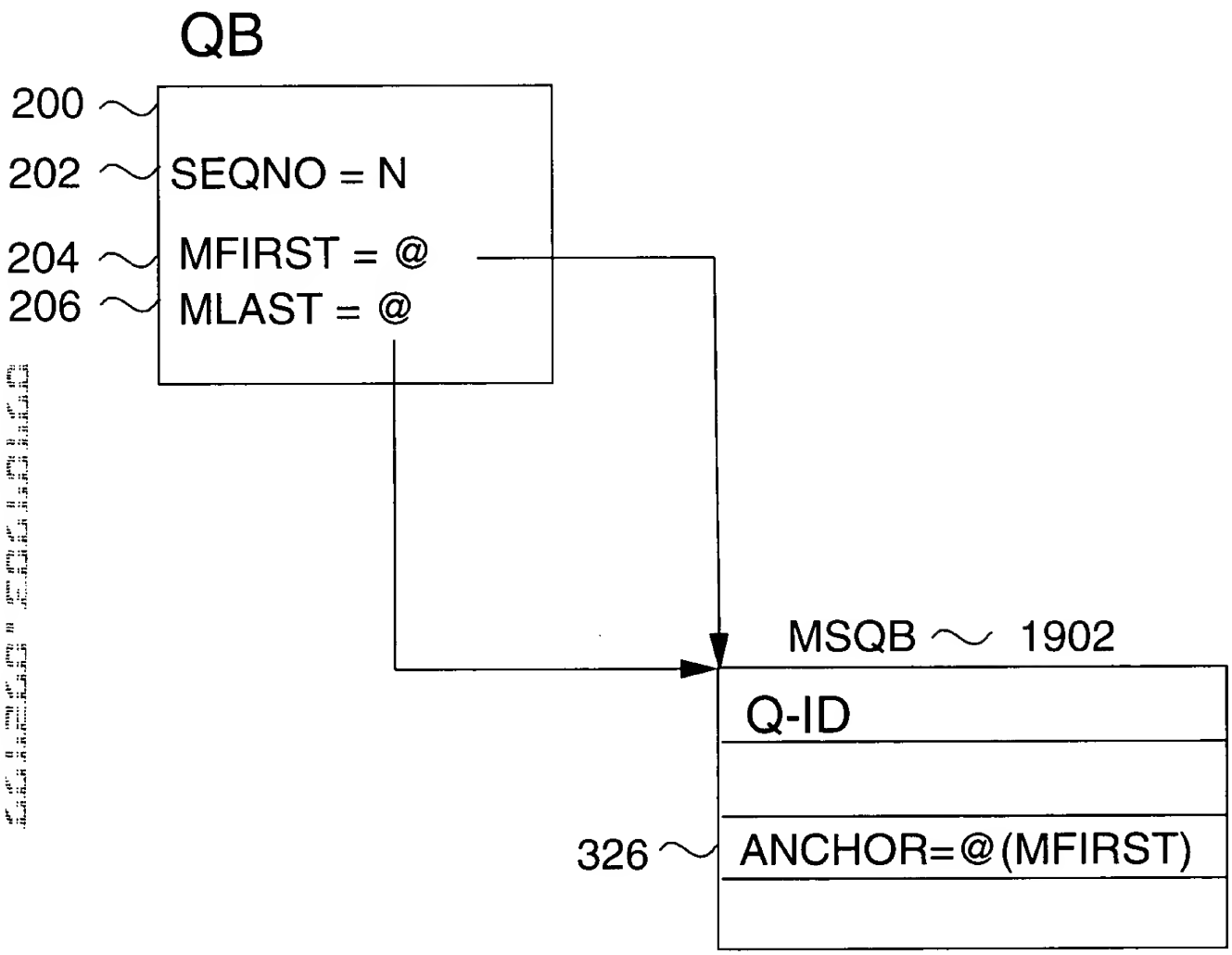

Fig 19A

PLO UNCHAIN ONLY ELEMENT - AFTER

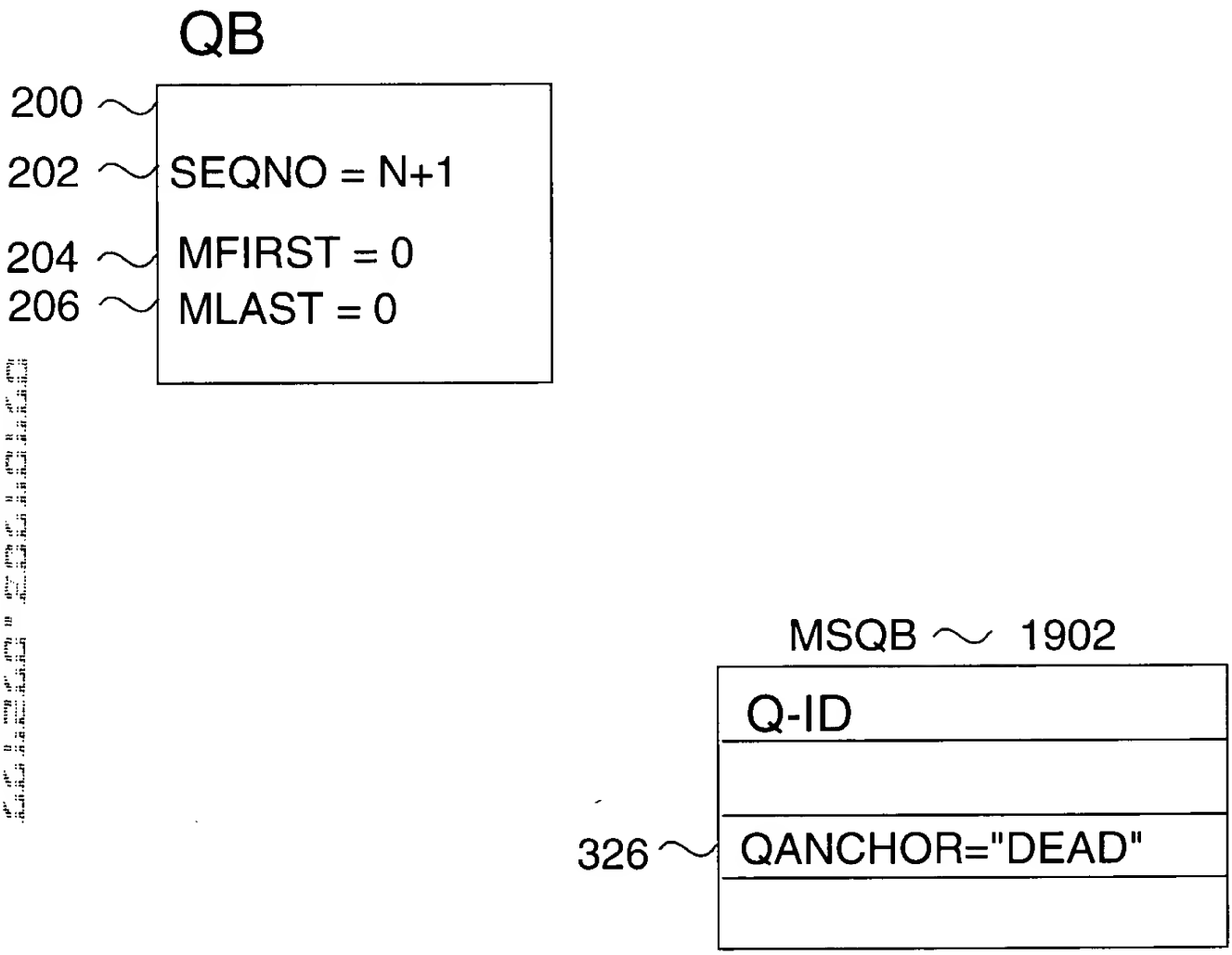

Fig 19B

PLO UNCHAIN FIRST ELEMENT - BEFORE

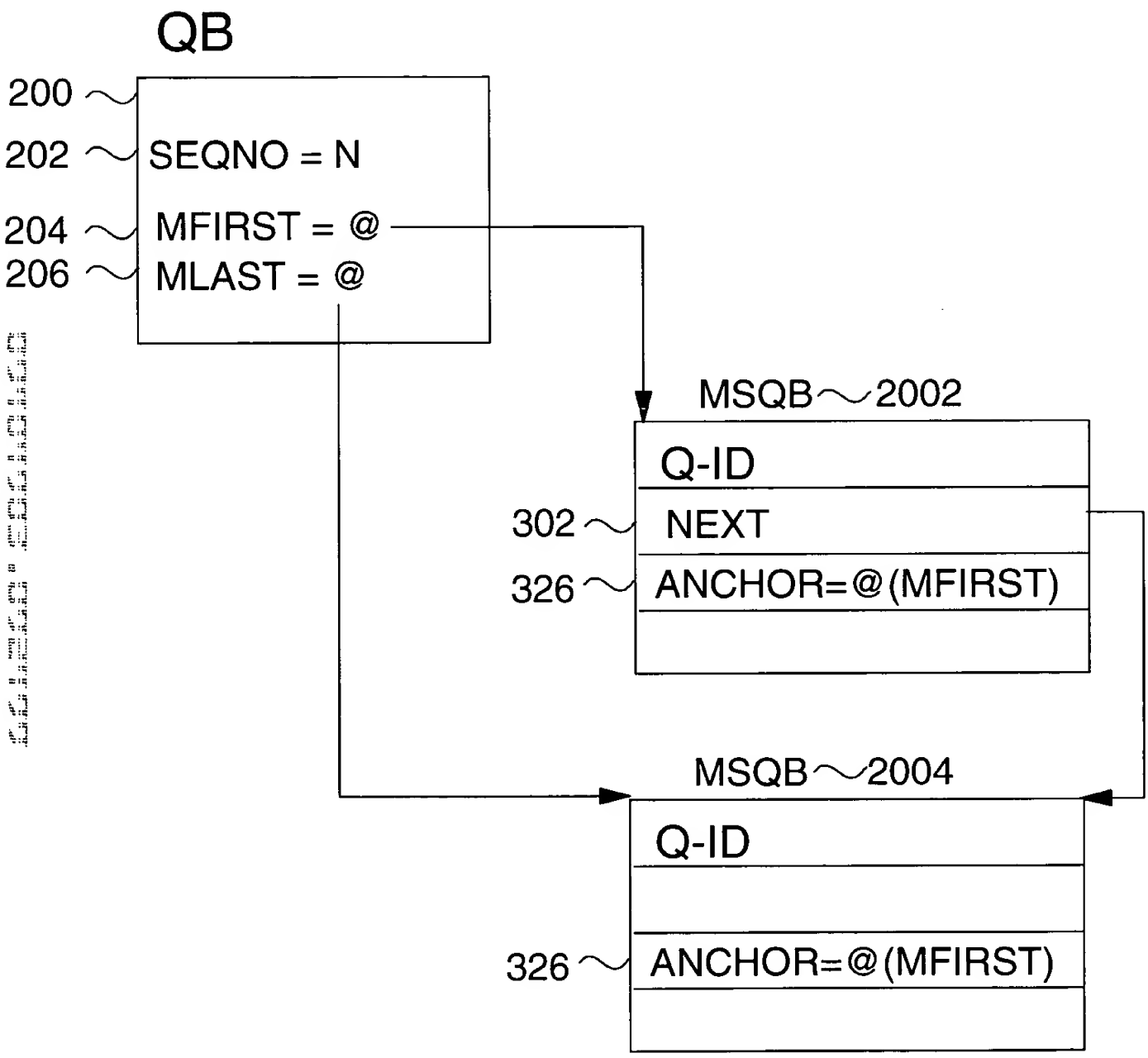

Fig 20A

PLO UNCHAIN FIRST ELEMENT - AFTER

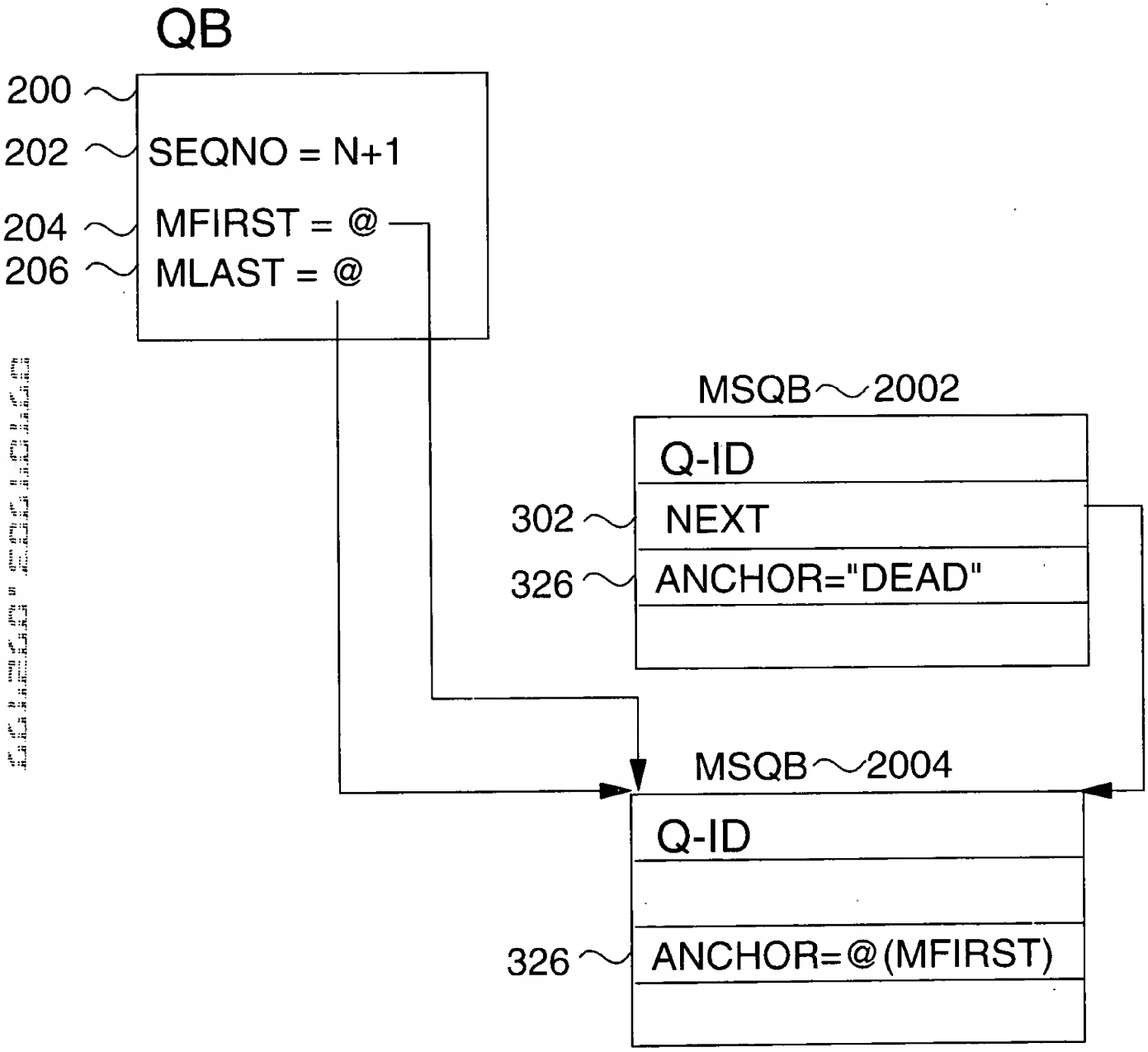

Fig 20B

PLO UNCHAIN LAST ELEMENT - BEFORE

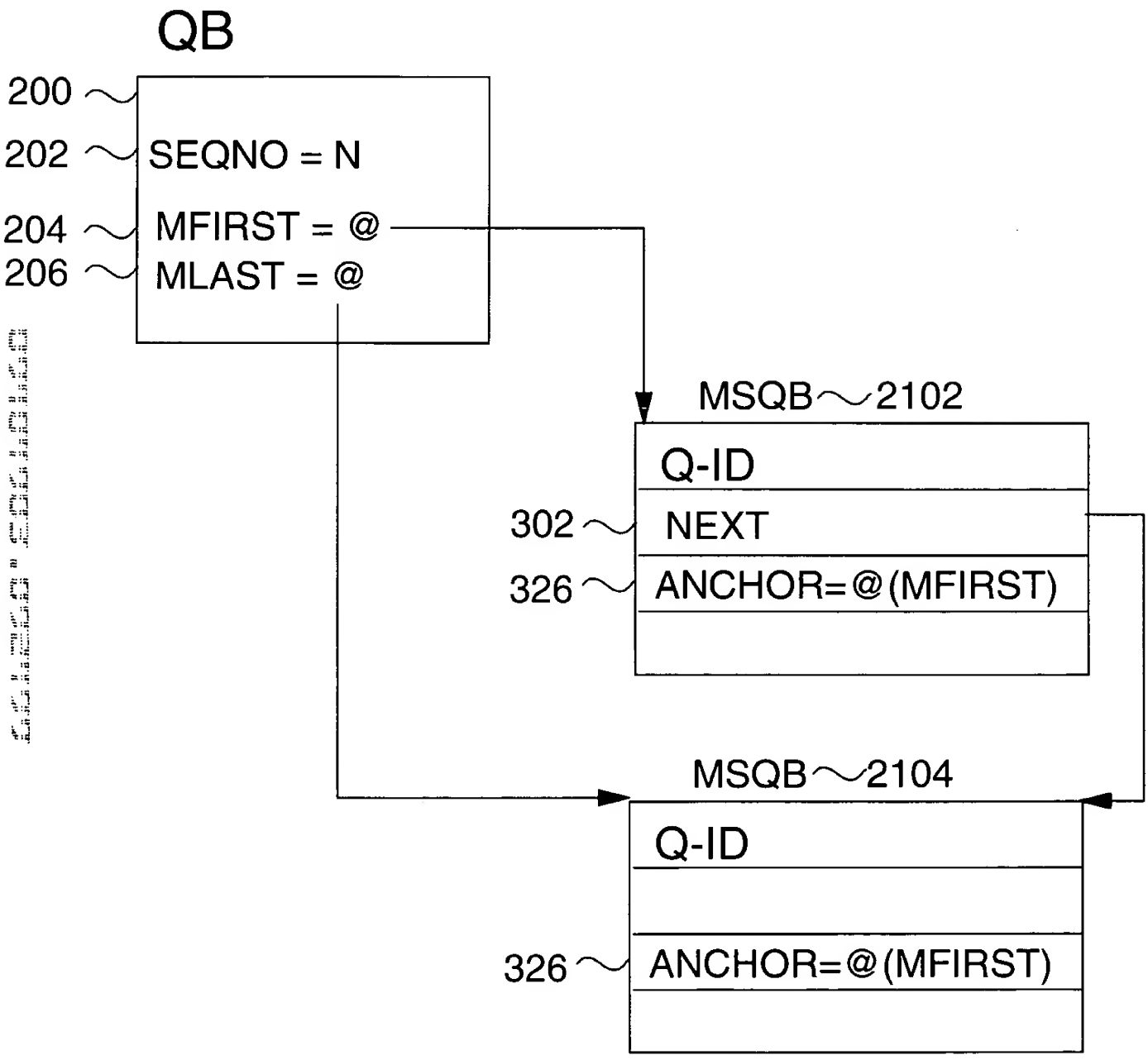

Fig 21A

PLO UNCHAIN LAST ELEMENT - AFTER

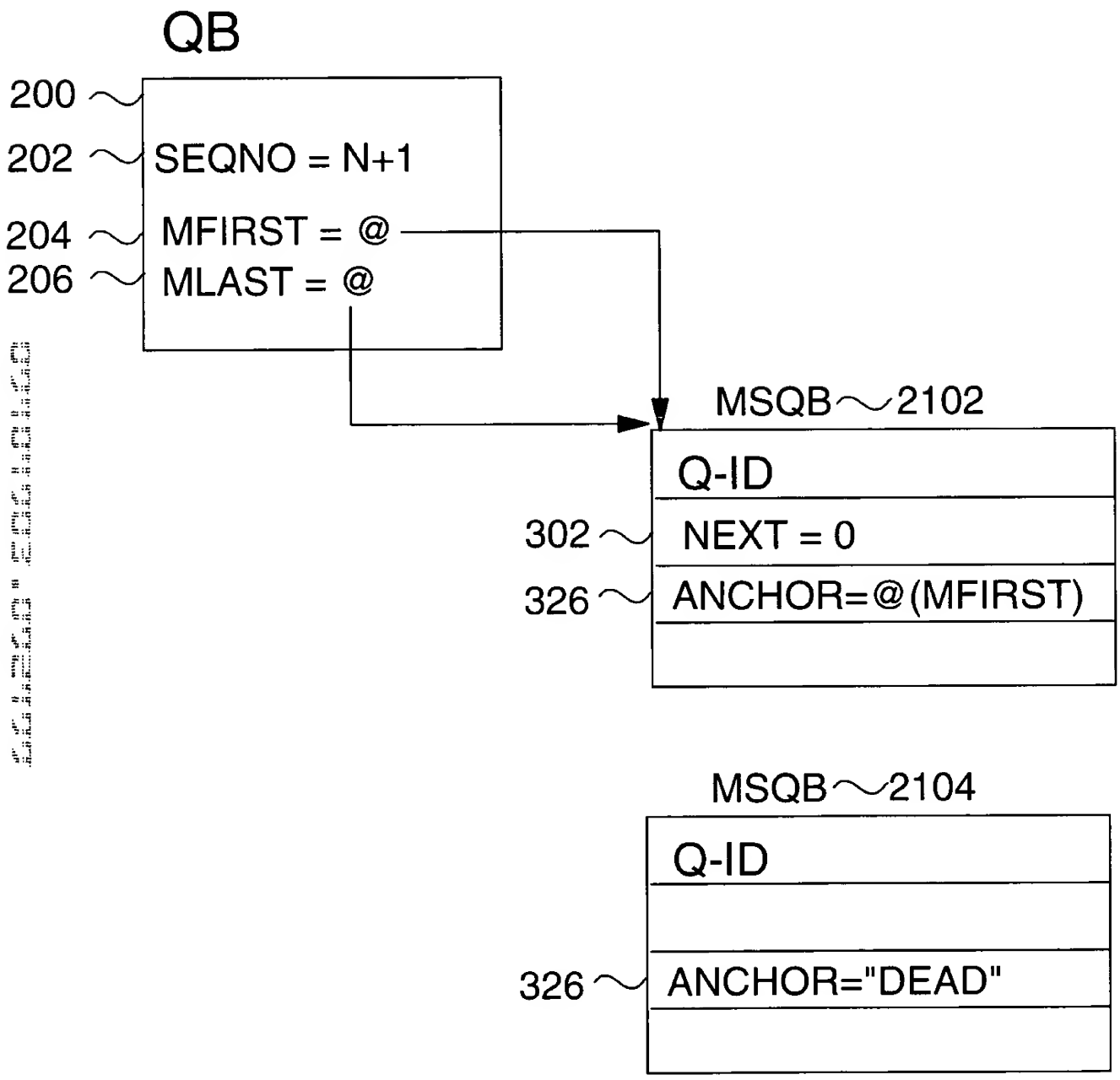

Fig 21B

PLO UNCHAIN MIDDLE ELEMENT - BEFORE

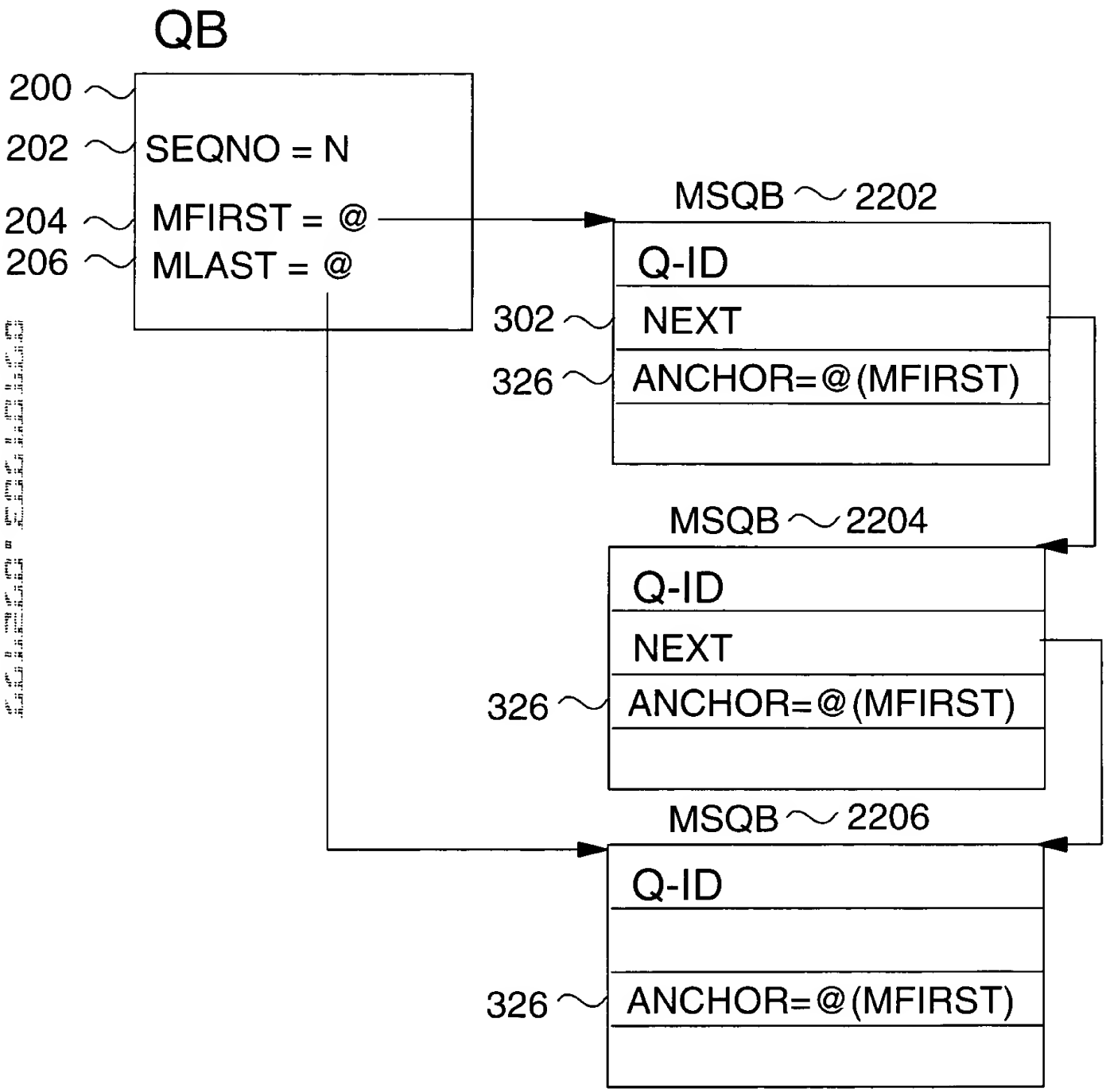

Fig 22A

PLO UNCHAIN MIDDLE ELEMENT - AFTER

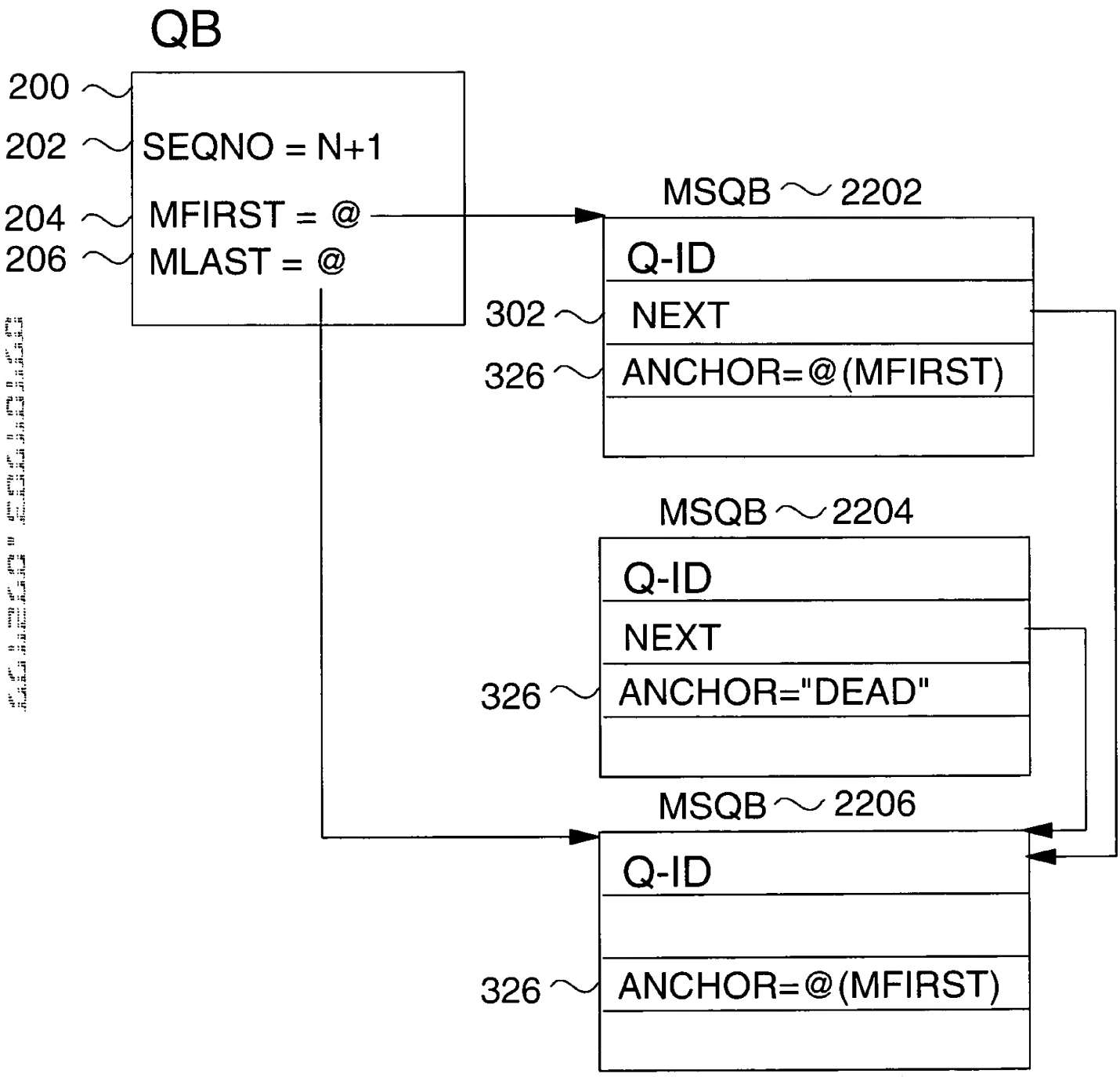

Fig 22B

PLO CHAIN DEAD ELEMENT - BEFORE

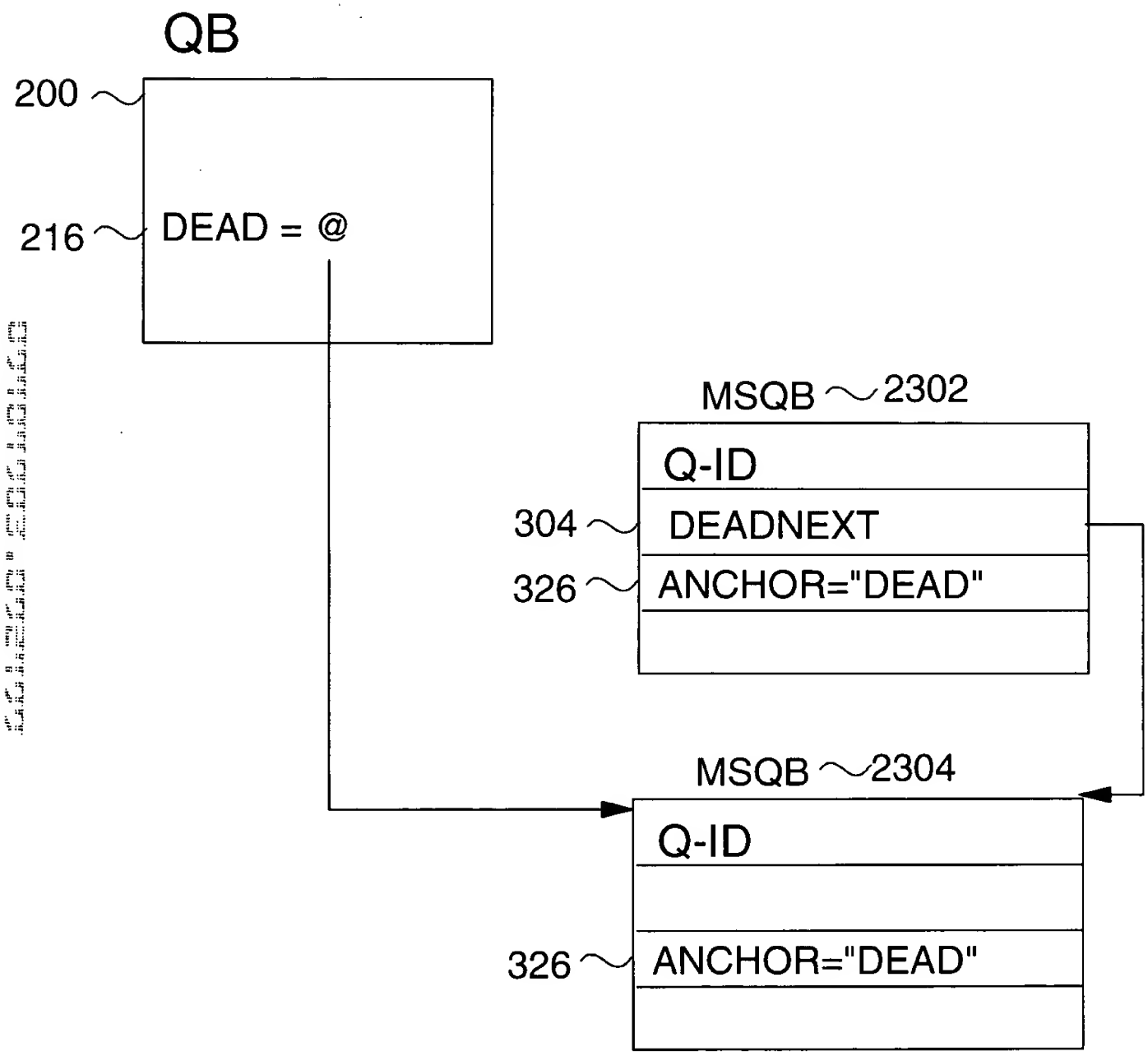

Fig 23A

PLO CHAIN DEAD ELEMENT - AFTER

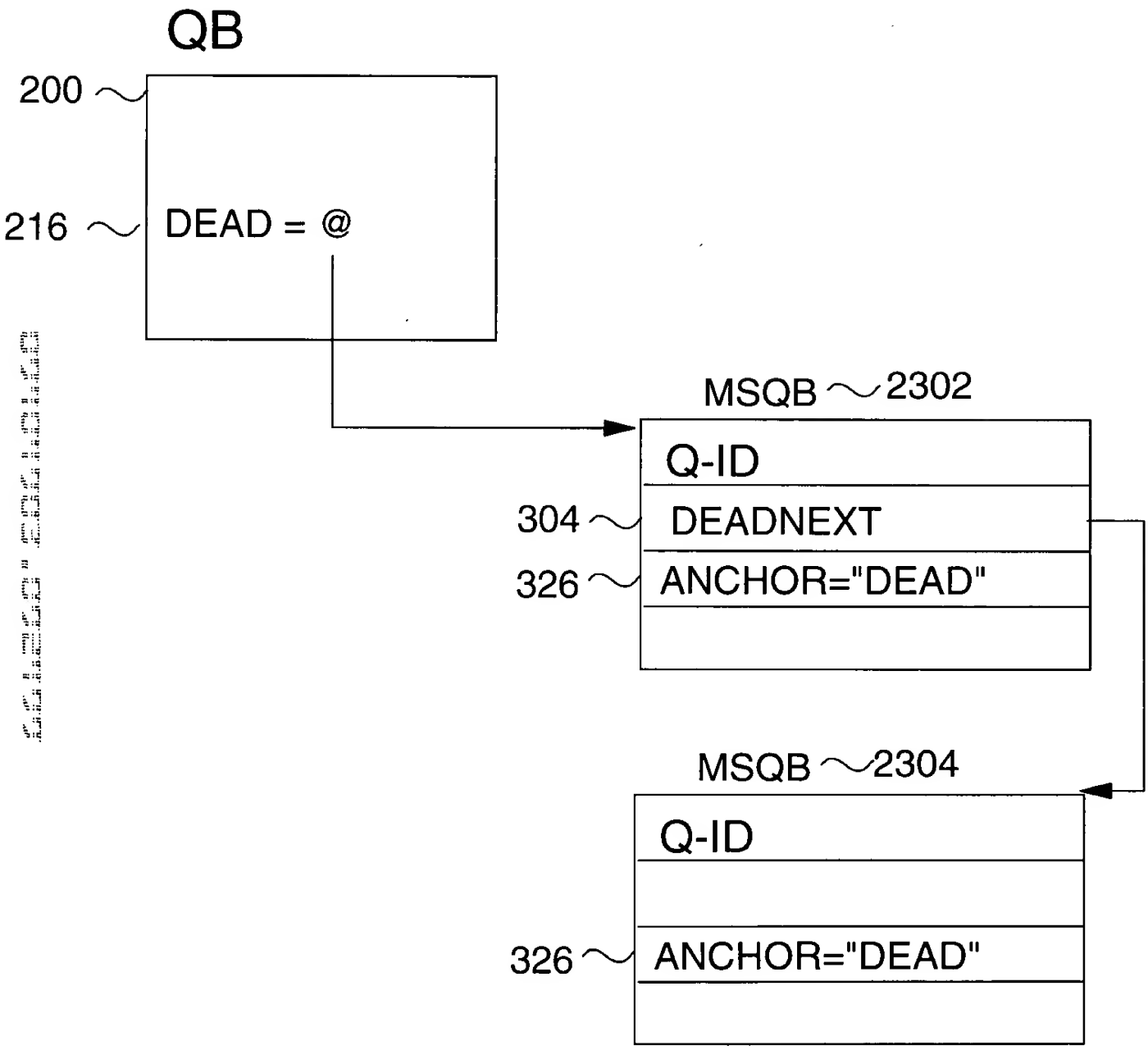

Fig 23B

MESSAGE QUEUE RECEIVE RECOVERY

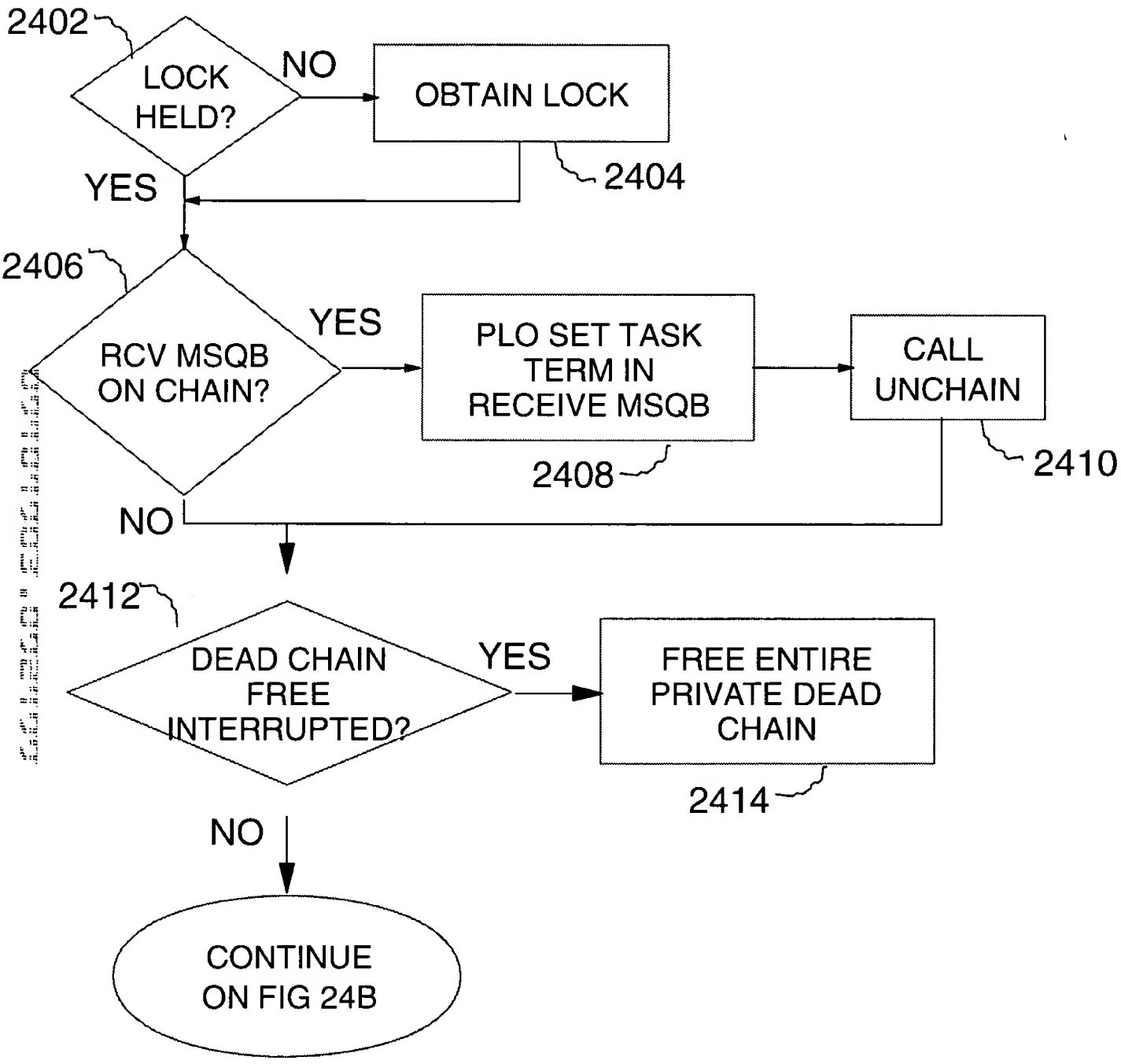

Fig 24A

MESSAGE QUEUE RECEIVE RECOVERY - CONT

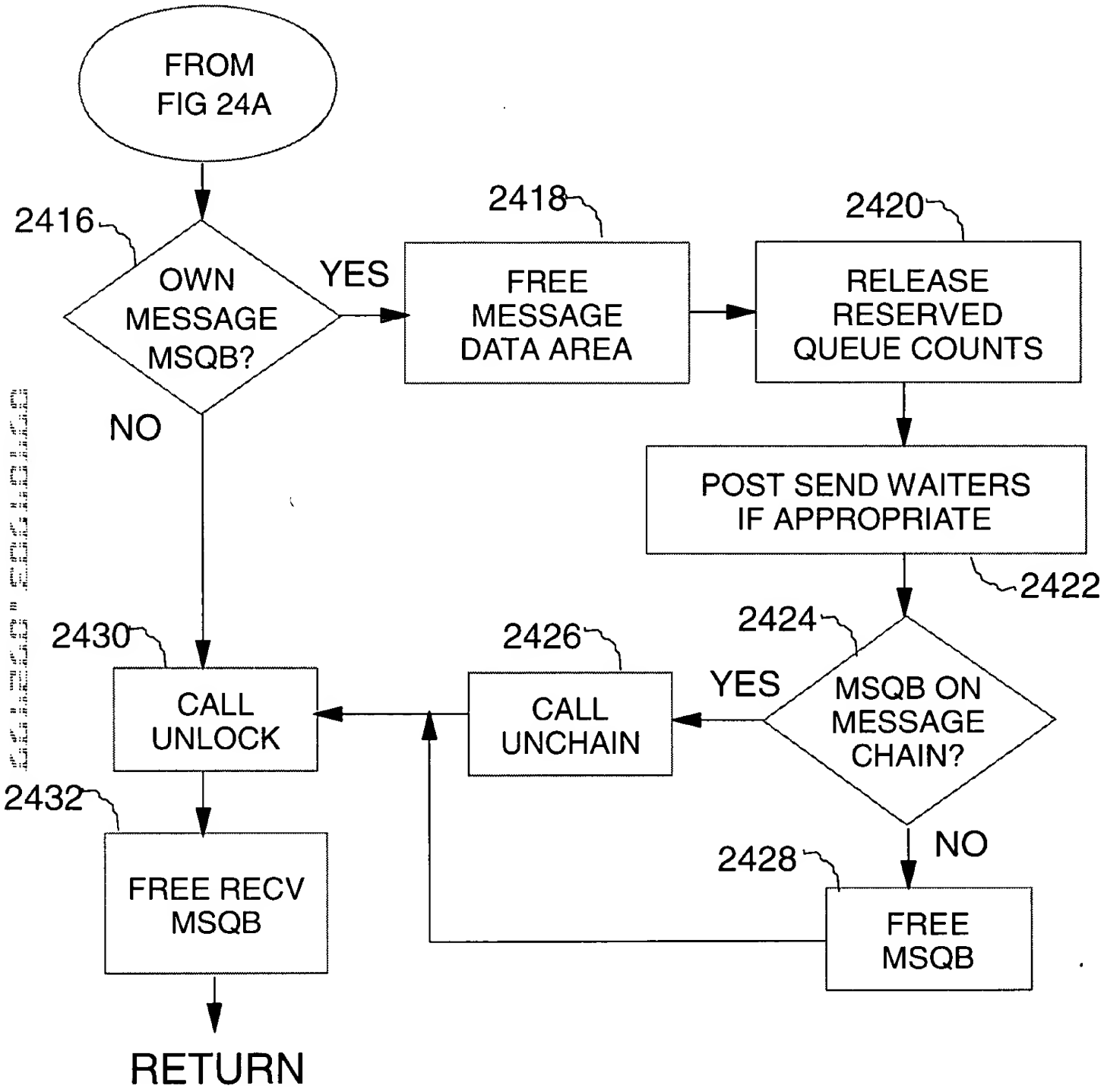

Fig 24B

MESSAGE QUEUE SEND RECOVERY

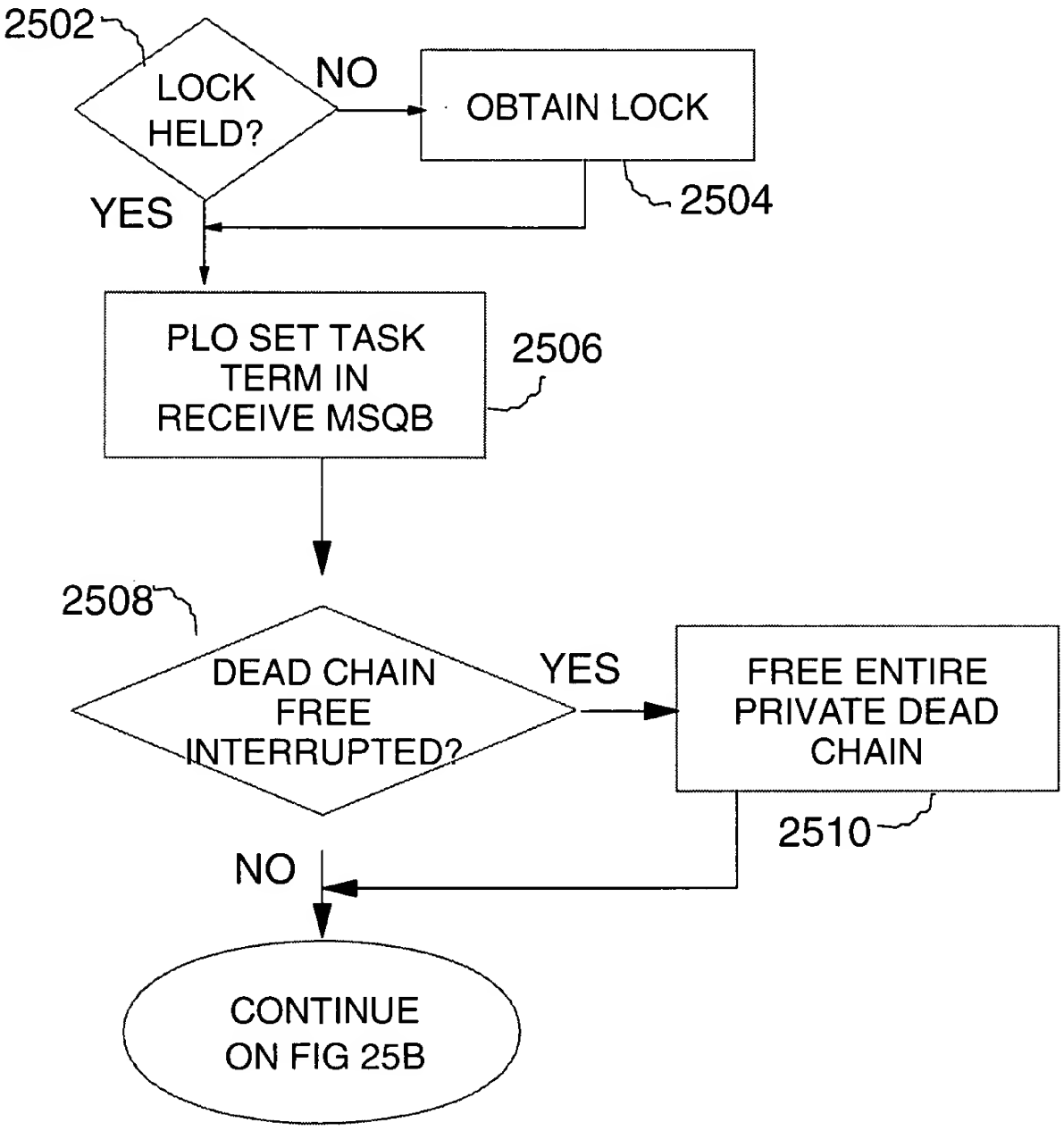

Fig 25A

MESSAGE QUEUE SEND RECOVERY - CONT

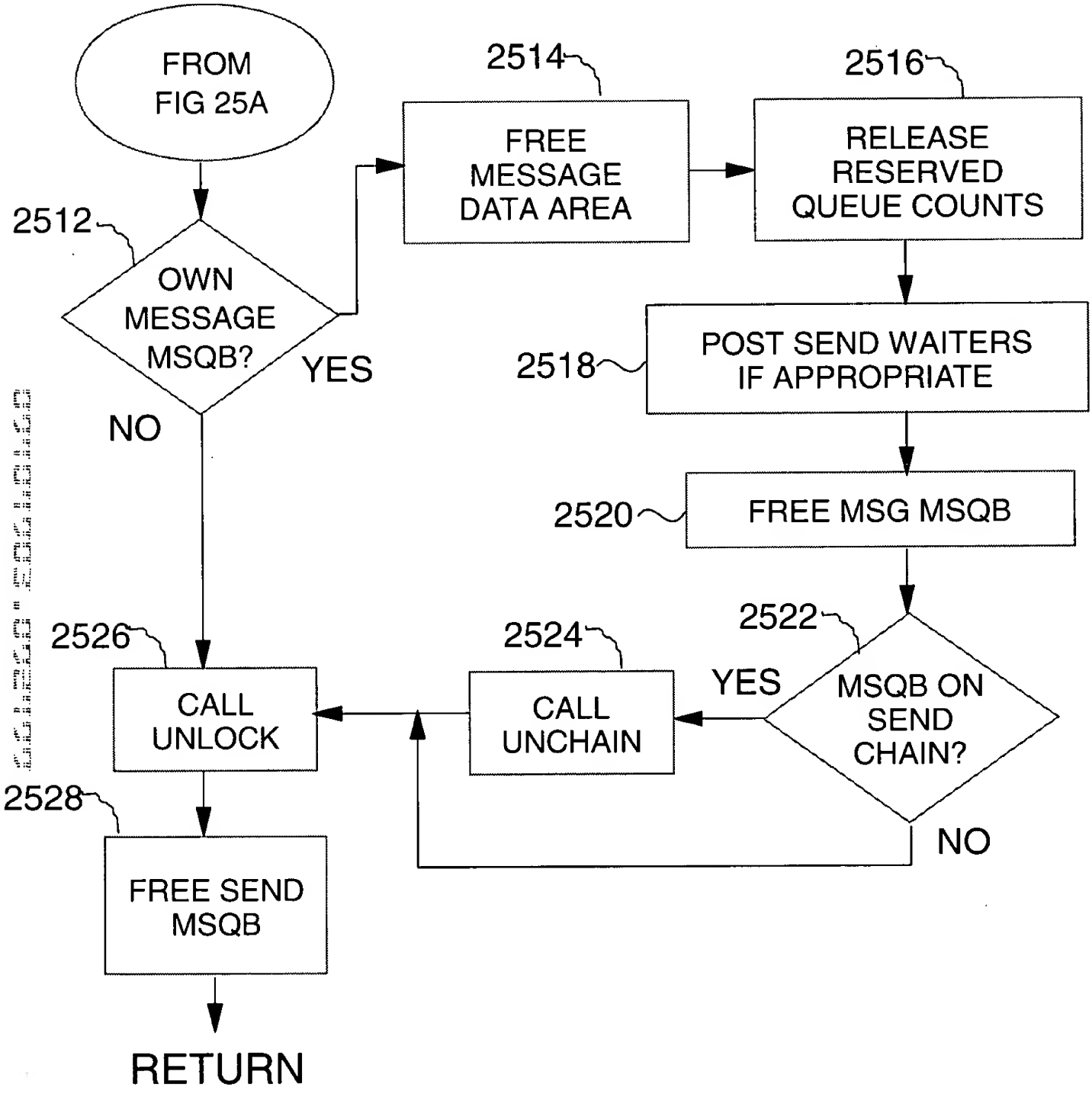

Fig 25B